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ABSTRACT

One of a series dealing with reading, mathematics, language arts, social studies, science, cultural arts, health, and physical education, this report on reading is designed to help North Carolina teachers in planning instructional programs for public school students and to inform the general public of students' educational needs and attainments. This assessment contains results and analyses of tests administered to 2500 randomly selected third-grade students in North Carolina. The students' skills in reading were assessed by a norm-referenced test (Iowa Test of Basic Skills) and an objective-based test (developed at the state level). Discussions of the nature of each of these tests and their interpretations as well as comparisons of achievement levels between North Carolina third graders and students throughout the United States are included. Numerous tables and graphs illustrate points made in the text. (LL)

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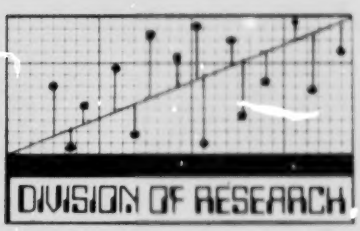


STATE ASSESSMENT OF EDUCATIONAL PROGRESS IN NORTH CAROLINA, 1973-74

DIVISION OF RESEARCH / NORTH CAROLINA DEPARTMENT OF PUBLIC INSTRUCTION / RALEIGH 27611

November, 1974

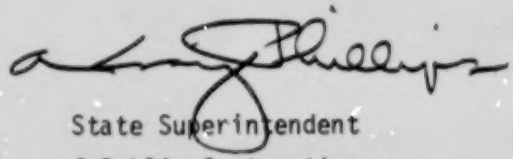
CS001727

FOREWORD

As one of the ways to improve the quality of public education in the State, personnel in the State Department of Public Instruction conduct an annual assessment of educational performance. This assessment provides educational decision makers with accurate and objective information for planning and administering the State's public elementary and secondary schools.

This year, a series of reports will be released on the performance of third-grade students. The reports will include reading, mathematics, language arts, social studies, science, cultural arts, health, and physical education. Also, special surveys on teachers' and principals' opinions of education will be released. All of this information should also help the general public to be better informed about the status of their schools on a statewide basis.

Aware of the fact that patrons and educators at the local school level also wish to know more about the quality of education in their schools, the State Department of Public Instruction is initiating a program to assist local school personnel to conduct assessment programs. Constructive use of this information, as well as statewide data, will insure continuing progress in providing appropriate learning experiences for all children and youth in North Carolina.



State Superintendent
of Public Instruction

ACKNOWLEDGMENTS

In any major comprehensive effort such as the current Statewide Assessment of Education, it is impossible to recognize all individuals and groups who have made significant contributions. It is appropriate, however, to recognize a number of groups and agencies that have provided major services in this effort.

Were it not for the support of the members of the State Board of Education, funds and other resources would not have been allocated for the assessment program. The leadership provided by members of the Board is especially appreciated.

Special acknowledgments go to the personnel in the local school systems who cooperated and assisted with the assessment effort. The superintendents, the support staff, the principals, and the teachers proved to be accommodating and professionally dedicated in every respect. Their assistance was invaluable.

The Research Triangle Institute should be highly commended for assistance provided in several technical areas of the assessment.

The staff members from the Divisions of Reading, Language Arts, Mathematics, Science, Cultural Arts, Social Studies, and Health and Physical Education were vitally involved in the selection and development of tests for the assessment. Without their efforts, the comprehensiveness of the assessment would have been severely limited.

Finally, special appreciation is expressed to staff members in the Division of Research who successfully coordinated and completed this major assignment in a most efficient manner.

Wm. J. Brown Jr.

Director of The
Division of Research
Department of Public Instruction

H T. Corner

Assistant Superintendent for
Research and Development
Department of Public Instruction

PREFACE

As part of his total effort to initiate better management techniques, the State Superintendent of Public Instruction indicated in 1970 that more and better information was needed for state-level planning. He initiated the State Assessment of Educational Progress in response to that need.

The assessment program was a collaborative effort from the beginning. Many levels of the education community contributed suggestions. Funds and services for the program were obtained from local, state, and federal sources. Cooperation among local and state components of the public school system and the nationally respected Research Triangle Institute was the backbone of the assessment. There was an open exchange of ideas, experiences, and services.

As a result of these cooperative relationships, the first State Assessment of Educational Progress took place in the spring of 1972 with minimal disruption to school programs. A statewide sample of sixth graders participated by completing exercises in reading, mathematics, language arts, career awareness, and several dimensions of student attitudes.

At the recommendation of the State Board of Education, the 1973 Legislature voted to fund the assessment program annually as part of the budget of the State Superintendent of Public Instruction. Concurrently, an advisory committee of legislators, businessmen, students, parents, and educators was formed to assist the State Board and the State Department of Public Instruction on aspects of statewide assessment and accountability.

A three-year cycle of assessment in grades three, six, and nine was established, beginning in 1974 with the State Assessment at the third grade. In the 1974 assessment, information was collected from teachers and principals as well as students. Student performance measures were taken in language arts, mathematics, cultural arts, reading, science, social studies, health, and physical education. Reports are now being prepared on the results.

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INTRODUCTION

Purpose of the Assessment

In order to improve educational planning and decision-making in North Carolina, the State Department of Public Instruction initiated a statewide assessment of educational progress. The information gathered through this assessment operation has three basic purposes:

1) To examine the state's present educational position: Knowing the educational status will enable educators to plan better programs for improving learning and teaching. Objective information will help decision-makers set program priorities with more assurance and allocate resources on the basis of need. An accurate description of the current status will increase general public knowledge and understanding about the public schools.

2) To measure educational progress over a period of years: As time passes, a charting of the educational progress in this state can be made. These benchmarks of educational quality could become the basis for educational accountability for the state.

3) To seek means of improving North Carolina's education: As more information is collected in the state assessments, variables which affect learning can be examined, and those variables which show a positive influence on learning can be promoted.

In addition, the state assessment effort provides local units with technical assistance in planning similar local programs which aid the setting of local priorities. Goals may be set using meaningful state and regional norms which are made available from the statewide effort. Furthermore, assessment information collected in each school will assist teachers in planning better instructional programs for public school youngsters and help patrons and parents to better understand the educational needs and attainments of North Carolina children.

In a continuing attempt to develop and improve North Carolina's assessment program, the Legislature, adding its encouragement through program support, approved funds in 1973 as a part of the State Superintendent's program budget to underwrite the statewide assessment effort. This State Assessment at the third-grade level is the first stage in a proposed three-year assessment cycle. In 1974-75, assessment will occur in the sixth grade, and, in 1975-76, at the ninth-grade level.

Implementation of the Assessment

The Sample

Selecting third graders to participate in the assessment program was the responsibility of the Research Triangle Institute, assisted by the State Department of Public Instruction. The objective was to choose a representative sample of size sufficient to provide reliable estimates of test score averages for the State, the Coastal Plains, the Piedmont, and the Mountains. Independent samples of 2500 students were considered appropriate for each of the five areas described in the section entitled "Assessment Areas". The total third grade enrollment of the eighteen schools containing 1970-71 state-supported kindergartens provided approximately 2,000 students for a special assessment follow-up.

A two-stage sampling procedure was designed to select the 12,500 students for the first five areas. In order to give each third grade student in North Carolina an equal chance of being chosen, 618 schools were randomly selected with the probability of school selection based upon stratification according to the size of the third-grade enrollment.

Random selection of students within schools was controlled to preserve the proportion of ESEA Title I enrollment within the third-grade class.

Of the 93,752 third-grade students in North Carolina, the chance of selection for any child was ten out of seventy-four.

Field Procedures

An Assessment Coordinator was designated by the superintendent of each participating LEA to organize all assessment activities. The activities included: (1) selecting and coordinating the testing schedule, (2) distributing and collecting test packages and questionnaires, and (3) providing information and assistance to the test administrators and principals. With the approval of the superintendent, Assessment Coordinators also selected someone other than the student's classroom teacher to administer the tests. These administrators read aloud all items which did not test the student's ability to read. To insure standardization of test procedures, the Division of Research staff held workshops to acquaint coordinators and administrators with assessment procedures.

Assessment Areas

The 1973-74 Assessment of Third Graders consisted of five different assessment areas and an additional research package for the evaluation of third graders who had previously attended state-supported kindergarten. In addition to student measures, all teachers (grades K-6) and principals of the 618 schools included in the student sample were asked to respond to questionnaires designed to reflect their opinions about the educational needs and priorities in North Carolina.

The subjects included in the six assessment areas and the type of testing involved are listed in Table 1.

TABLE 1

OVERVIEW OF 1973-74 ASSESSMENT AREAS, TESTING, AND SAMPLING

Assessment Area	Type of Testing	Number of Students Sampled
Reading, Math, Language Arts	Norm Referenced (Iowa Tests of Basic Skills)	2,500
Reading, Math, Language Arts	Objective Based	2,500
Health and Physical Education	Objective Based Motor Performance	2,500
Cultural Arts	Perception Survey	2,500
Science and Social Studies	Objective Based	2,500
Third-Grade Kindergarten Follow-up	Norm Referenced (Iowa Tests of Basic Skills (Cognitive Abilities Test) (Self Observation Scale)	2,000

Types of Instruments

Reading, Language Arts, and Math were each assessed by both a norm-referenced test (Iowa Tests of Basic Skills) and an objective based test developed at the state level. The difference in the kinds of information provided by the two types of measurements should be considered when interpreting test results.

Nationally standardized achievement tests, such as the Iowa Tests of Basic Skills, are designed to provide information about student performance in given subject areas in relation to the performance of other students who are representative of the nation as a whole. The national sample of students taking the ITBS is the "norm" or reference group to whose performance we compare our state results. Thus, the ITBS provides information on the educational status of North Carolina third-grade students in relation

to the performance of a national sample of "typical" third graders. Such standardized tests also assume a continuum of achievement skills based upon the scores of the national sample. North Carolina's third-grade results may be considered against this continuum.

Norm-referenced tests are designed to spread out developmental scores on a continuum of skills spanning several grade levels. However, they do not tell us specifically what our students have achieved or how they perform on a given set of educational tasks. Some items on the ITBS can admittedly be grouped into subject area objectives, but the test is not designed for diagnostic purposes.

Therefore, objective-based tests were developed for the areas of reading, language arts, and mathematics in order to assess more specific knowledge of North Carolina's students. Program area specialists and researchers collaborated on this review and selection process. Questionnaires were developed, information gathered, standardized tests carefully reviewed, and objectives and items finally selected in accord with some of the major educational goals of North Carolina.

Objective-based tests, also known as criterion-referenced tests, are developed differently from norm-referenced tests. They facilitate assessing the extent to which students have learned some defined behavior domain or specific class of learner skills. These behavior domains are also referred to as objectives. Specific objectives considered important or crucial for later skills are selected for each subject area. Then, items selected to measure these objectives determine how well students have learned the knowledge or behavior described by the objectives. Objective-based tests are thus diagnostic of specific learning, rather than more broadly comparative in nature - as are the norm-referenced tests.

Strengths and weaknesses of a group of students for a given subject area are thus determined, and sometimes, though not necessarily, in relation to a norm group.

It is important in making educational program decisions to know specifically what students have learned as well as how they are generally performing in relation to other students. For this reason, the assessment of third graders included experimental objective-based tests for various subject areas. Norm-referenced and objective-based tests when combined, should provide a more complete picture of the performance of North Carolina students.

In addition to student performance tests, other instruments were used in the North Carolina assessment. Tests were developed on student perceptions in some subject areas, and a survey of teachers' and principals' needs was taken. The assessment staff also acquired school and community information on variables known to be associated with achievement.

Interpreting Test Scores

Norm-Referenced Tests

The knowledge that a student answered seventy-five items correctly on a ninety-item test tells little in itself about the achievement level of the student. If we know, however, that ninety percent of the students in the standardization sample earned scores lower than 75, we might conclude that the student in question performed rather well. The value assigned to a score, then, is determined by comparing that score with scores earned by members of the appropriate norm group. This process of comparing a student's score with a scale based on the test performance of the norm group gives useful, relative meaning to the individual student's score.

Systems have been developed for calibrating the distribution of norm group scores, making the comparison process easier and at the same time more informative. These systems clarify position of scores in relation to one another and deal with the problems of direction, distance and degree. However, as educational statisticians at the Research Triangle Institute have pointed out,... "no single statistic exists for completely meaningful interpretation of the degree of difference between (groups of scores)." Therefore, these reports will include a variety of reporting systems to aid in the perception of degree.

One system is based on the relationship between the average number of items answered correctly by groups from successive grades (grade equivalent). Another compares a student's performance against the percentage of students in the national norm group whose scores fell below the student's score (percentile rank). Still another system looks at item performance. (Norms for item performance are available for the ITBS.) The percentage of students in the national norm group who answered each item correctly provides a means of comparison for the item performance of North Carolina's students (item difficulty). Other systems compare the total distributions of the North Carolina group against the total distribution of scores in the national norm group.

The procedure for establishing national norms for comparison involves choosing a "representative" national sample of students, administering the tests to them, and determining the distribution of their scores within each grade level. For example, if a median (average) vocabulary raw score of 18 was attained by students tested during the first month of their third-grade enrollment, the developmental concept grade equivalent (GE) would assign a score of 31.0 to the vocabulary raw score of 18.

Other grade equivalent scores are established from the median (average) raw score attained by students at the beginning of other grades (i.e., 21.0, 31.0, 41.0, etc.) on this test. Grade equivalent scores corresponding to each of the ten months of school development between grades (31.0 to 41.0, etc.) are determined by dividing the raw scores between the reference points into ten intervals for the months of the school year and summer. These ten points, of course, represent an <u>average</u> year's development. It would be unreasonable to expect below average students to obtain ten points in a year while talented students should obtain more. The estimate of developmental skill from such a system is helpful. However, it does have limitations, is often misinterpreted and misused, and, therefore, generally not recommended as the only reporting device (see Appendix A of the 1973 Assessment Report). The following paraphrased excerpt from the Teacher's Guide to the ITBS is informative.

> The grade equivalent is an estimate of where the pupil is along the developmental continuum measured by these items, <u>not</u> of where he should be placed in the graded organization of the school. A second grader with a grade equivalent score of 45 is at the 90th percentile of the second grade norm group, meaning that 90 percent of the second grade pupils scored lower and 10 percent scored as well or better. <u>This pupil should be considered as being in the upper 10 percent of the second grade.</u> His grade equivalent of 45 <u>does not</u> indicate that he is ready for fourth-grade work or that he should skip the third grade.

The publisher points out this limitation does not mean that grade equivalents should not be used at all. He continues, "They are valuable indicators of pupil growth [particularly for those not considerably above or below average] <u>but should not be used to determine a pupil's standing in his grade</u> .... Percentile norms and stanines are provided for ... this purpose." We concur and believe that looking at performance in several ways, while remembering <u>the limitations of each</u>, is the better approach to valid interpretation.

Objective-Based Tests

Generally, objective-based tests results are interpreted by looking at the percentage of items achieved (or answered correctly) for a given objective. The desired level of achievement for an objective is a considered, yet subjective decision on the part of educators. In some cases, 50 percent achievement of an objective at that grade level may be acceptable; in others, 100 percent may be considered necessary for acceptable performance. The level depends on both the purposes for assessing the objective and whether or not the objective has been previously taught. In the statewide survey, objectives were selected that appeared to be commonly relevant to the curricular area throughout the state or that had some importance for state-level planning. Acceptable achievement levels may therefore vary with different subjects and objectives. This same process could be repeated at the regional or local level and the final test may again have different objectives, depending on local priorities. A statewide sample of outstanding third-grade teachers reviewed the state selection of objectives this past summer for relevance and importance to their classes. They also examined the items and estimated the success they felt their students would achieve on them. However, due to possible differences which exist across the state, a "desired" achievement level was not set for North Carolina.

Another consideration is the number of items per objective. As mentioned earlier in the "Types of Instruments" section, objectives reflect specific areas or domains of student behaviors. Because only a limited number of items can be selected for a given group of behaviors (objectives) the results on these items should be carefully interpreted as "indicators" of general performance for the objective.

If there are only two items per objective, the possible achievement levels for the objective are necessarily 0 percent, 50 percent, and 100 percent achievement. Similarly with four items for the same objective, the possible achievement levels would be expanded to 0 percent, 25 percent, 50 percent, 75 percent, and 100 percent. This increase in items enables a more specific reporting of results at both the student and group level. Further, we have a greater assurance that the students (or groups) have adequately learned the skills or behaviors stated in the objective if four items are used rather than two. However, no set rules can be given, as some objectives can be stated with greater specificity than others and require fewer items for adequate measurement.

Generally, statewide results will be reported by objectives and reflect the percentage of students who answer a given number of items correctly for the objective. For example, if an objective has three items, results will show what percentage of students answer one, two, three, or no items correctly. The number of items a student or group is expected to answer correctly is again a considered judgment based on the particular objective and the value or priority the user places on that objective.

Information at the item level also aids in interpretation as efforts are made to diagnose specific strengths and weaknesses. Thus, the objective-based test allows flexibility to curriculum specialists in assessing important developmental skills with greater accuracy. Certainly it adds a valuable perspective to those who plan North Carolina programs to meet specific needs of North Carolina youngsters.

Making Valid Comparisons of Test Scores in North Carolina

Comparisons of test scores may be less than useful if the individuals within the groups vary greatly on important characteristics. Comparisons of the test scores of classes, schools, local school districts, or states must be carefully interpreted in light of the inherent differences among groups and those individuals who comprise the group. Group comparisons can be made validly when the groups as a whole are similar on certain basic characteristics. This section will review important characteristics which are related to achievement and which differ among the regions of the nation. These characteristics should be considered by all who seek to make appropriate comparisons. The nature of the national norm group will also be described in order that state and national comparisons can be viewed from proper perspective.

Characteristics of the National Norm Group

In interpreting norm-referenced test scores in North Carolina, it is important for the reader to know the makeup of the norm group since the state's performance comparisons are against the standards set by the students who comprise this norm group.

Prescribed conditions were set forth in the selection of students for inclusion in the ITBS norm group. The pupils in the sample had to be representative of the various ability and achievement levels in the nation. The sample had to be sufficient in number to represent adequately the many diverse elements of population within the United States. Accordingly, a sample size of slightly more than 20,000 students per grade was selected.

Sampling procedures employed seven community size categories. A number to represent socioeconomic status was developed to further stratify each

size community. It was found that two important variables that measure socioeconomic status - (1) median years of education of the population 25 years and over and (2) median family income, in thousands of dollars - had similar variability. Therefore, these two variables were summed to form an index of socioeconomic status which served as a basis for stratification of communities within a size category.

In order to compensate for incomplete administrations due to absences and other losses, weights were assigned to all raw score frequencies. Size of system, socioeconomic status, region, and public-parochial school balance were all considered in assigning these weights. The weighted distributions are believed to closely approximate those of the total population of students in the United States for each grade.

The following tables display the results of this sampling procedure. The reader can compare the national norm sample of pupils with the general population figures for both the nation and North Carolina. Table 2 shows a comparison of the percentages of students in the weighted norm sample that are within each of the national regions. The corresponding population figures are shown for North Carolina and the United States.

TABLE 2

REGIONAL PERCENTAGES IN THE NORM SAMPLE AND THE TOTAL POPULATIONS OF N. C. AND U. S.

GROUP	REGIONS				
	Northeast	Midwest	Southeast	Southwest	Far West
Norm Sample	21.4	32.3	19.9	11.2	15.2
United States Population	26.7	29.1	18.8	10.0	15.4
North Carolina Population			100.0		

Table 3 compares the percentage distribution of the students in the norm sample among seven community sizes with the percentages within these community sizes in the nation and North Carolina.

TABLE 3

COMMUNITY SIZE PERCENTAGES IN THE NORM SAMPLE AND THE TOTAL POPULATIONS OF N. C. AND THE U. S.

Group	Lower Bounds of Community Size						
	1,000,000	250,000	100,000	50,000	25,000	10,000	1-10,000
Norm Sample	9.7	11.5	7.7	9.1	8.5	10.5	42.6
United States Population	9.2	11.5	6.7	8.3	9.0	10.2	45.6
North Carolina Population (1970)	0.0	8.1	23.2	7.8	8.2	6.4	52.4

The socioeconomic categories within community size are not available from the test manuals, however, the socioeconomic index ranged from 7 to 27. This range can aid in the interpretation of Table 4 which compares the U. S. and North Carolina populations.

TABLE 4

MEDIAN YEARS OF EDUCATION AND MEDIAN FAMILY INCOME (IN THOUSANDS OF DOLLARS) FOR THE 1970 TOTAL POPULATIONS OF N. C. AND THE U. S.

Group	Median Education	Median Family Income	Socioeconomic Index
U. S. Population	12.1	9.87	21.97
N. C. Population	10.6	7.77	18.37

Although ethnic membership was not a factor in selecting or weighting of the norm group, estimates of the percentages in the norm sample as well as the total North Carolina and the United States populations is given in the next table.

TABLE 5

ESTIMATES OF THE PERCENTAGE DISTRIBUTION WITHIN ETHNIC GROUPS IN THE NORM SAMPLE, THE NORTH CAROLINA SAMPLE, AND THE U. S. STUDENT POPULATION

Group	American-Indian	Black	Oriental	Spanish/American	White
Norm Sample	0.6	15.7	0.5	4.0	79.1
United States Population (1968)	0.4	14.5	0.5	4.6	80.0
North Carolina Sample	1.2	29.0	-	-	69.0

These tables indicate that the norm sample is representative of the nation and there are significant demographic differences between pupils in North Carolina and pupils in the nation.

Additional information about third graders in North Carolina and their environment is presented in the following tables.

TABLE 6

PUPIL CHARACTERISTICS OF THE THIRD-GRADE ASSESSMENT SAMPLE

Characteristic	State Assessment Sample
Sex	
. Male	51.3%
. Female	48.5%
Racial/Ethnic Membership	
. American Indian	1.2%
. Black	29.0%
. White	69.0%
Parental Education Level	
. Neither over eighth	5.9%
. One over eighth	25.9%
. One high school graduate	44.8%
. One over high school	23.5%
Family Income Estimate	
. Less than $3,000	15.4%
. $3,000 - $15,000	75.6%
. Over $15,000	8.1%
Any Kindergarten Experience	
. Yes	39.2%
. No	53.4%
. Unknown	6.8%

North Carolina Comparisons With Other States

Because learning does not stop at the end of the school day, it is helpful to review the environment in which this out-of-school learning occurs. North Carolina, the twelfth most populous state in the nation has been described as a "state of magnificent variety." The agriculture and industry of North Carolina are varied, with the state producing two-thirds of the country's flue-cured tobacco and leader in fabric and furniture

manufacture. Tourism also flourishes in North Carolina as thousands annually visit its mountains, parks, golf courses, shores, and sites for boating and fishing. Clearly, such diversification makes it difficult to describe the "typical" North Carolinian.

The diversity continues when such variables as individual income, occupation, race, and education are considered. These factors and the values placed on them vary not only by county and region, but within communities as well.

In studying educational status and change over time it is essential to examine achievement in conjunction with environmental factors. Of these elements, socioeconomic factors, in particular, are associated with educational opportunity and attainment, and these exert a major influence on a child's growth and development. Educators must consider these tangibles and, more importantly, the values and ethics implicit in a child's immediate environment. The remainder of this section will contrast the environment of the North Carolina pupil with the environment of pupils in other states.

A state's population, size, and population distribution are basic environmental factors. The following tables show North Carolina's relative ranking. More detailed information is included in the Appendix.

TABLE 7

NORTH CAROLINA'S RANK AMONG THE FIFTY STATES
ON BASIC DEMOGRAPHIC FACTORS

Factor	North Carolina's Rank
Land Area (1970)	29
Population (1973)	12
People Per Square Mile (1970)	17
Percentage Classified Rural (1970)	5
Percentage Black (1970)	6
Median Age (1970)	15

As evident here, North Carolina students are from a more populous state where the people are younger, more likely to be of a minority group, and live in smaller towns than people in most states. It is also apparent that the degree of rurality is twice that of the national average while the density is slightly above average.

TABLE 8

NORTH CAROLINA'S RANK AMONG THE FIFTY STATES
ON BASIC SOCIOECONOMIC FACTORS

Factor	North Carolina's Rank
Per Capita Income (1972)	34
Households With Cash Incomes of $3,000 or less (1972)	12
Per Family Income (1970)	40
Median Years of Education (1970)	46

North Carolina's students do not share in as much of the basic socioeconomic wealth as do students from other states. That is, North Carolina ranks among the lowest ten states on important characteristics such as income and education level of adults.

Thus, North Carolina's combination of factors associated with income, ethnic composition, degree of rurality, and adult education level seem to indicate a "non-typical" background for her youth. A picture emerges of an environment which may not reinforce maximum educational progress.

Comparisons Within North Carolina

Just as there are strong differences between North Carolina and the average composite for the nation, there are great variations within the state's boundaries. Particularly important is the variety which exists

with the differing traditions and personalities of its Mountain, Piedmont, and Coastal Plains groups. The following table describes some of these differences:

TABLE 9

GENERAL ENVIRONMENTAL FACTORS WITHIN NORTH CAROLINA

Factor	Mountains	Piedmont	Coastal Plains	State
Population (1970)	760,760 (15%)	2,692,975 (54%)	1,628,323 (32%)	5,082,059
Growth (1960-1970)	11%	21.3%	7.7%	11.5%
Distribution of Black Population (1970)	41,459 (4%)	569,575 (51%)	515,444 (46%)	1,126,478
Percentage Black (1970)	5.4%	21.1%	31.6%	22.2%
Percentage Classified Rural (1970)	75.1%	45.9%	60.6%	55.0%
Percentage That Moved (1965-70)	40.5%	46.0%	49.2%	46.2%

These basic environmental factors indicate that a majority of the people - black and white - live in the Piedmont; the Mountains have the highest percentage of the people living in rural areas; and the Coastal Plains population has a greater proportion that is black. Perhaps the major point in these figures is the variety between these three major geographical divisions. As disclosed earlier some of these same variables have been shown to be related to achievement.

Distribution of economic resources in these three regions also varies as the following table shows:

TABLE 10

SOCIOECONOMIC FACTORS WITHIN NORTH CAROLINA

Factor	Mountains	Piedmont	Coastal Plains	State
Family Income	8,059	10,234	7,757	9,139
Family Income Female Head (1970)	5,017	5,620	4,104	5,017
Average Percentage Free School Lunch	35.2%	37.6%	64.7%	47.8%
Percentage Living Below Poverty	20.2%	15.1%	28.8%	20.3%
Percentage of all Families Below Poverty with Children Under 18	10.7%	8.9%	19.2%	12.3%
Percentage of all Children Under 18 From Poverty Families	20.5%	17.4%	34.4%	23.6%
Percentage of Children Under 18 Living with Both Parents	82.6%	80.1%	73.7%	78.3%

Because socioeconomic status is a strong predictor of academic success, regional differences in educational achievement are to be expected. Thus, any academic comparisons should be carefully tempered by these background differences.

Still another factor associated with academic achievement is the educational environment. Regional patterns are suggested in the table below:

TABLE 11

EDUCATIONAL FACTORS WITHIN NORTH CAROLINA

Factor	Mountains	Piedmont	Coastal Plains	State
Average of Median Years of Education - Adults Over 25	9.5	10.2	9.9	10.6
Adult Education Index	2.50	2.82	2.56	2.69
Percentage of High School Graduates of Those 16-21 Not In School	49.7%	48.7%	44.0%	46.7%
Taxing for Education Index	417	507	439	478

These environmental, socioeconomic, and educational factors are a major influence on a child's educational growth and development. Educators who consider regional comparisons must be aware of the differential effects that these factors contribute within regions. Certainly, expectations are better determined with an awareness of the status of these variables irrespective of whether local, regional, or state comparisons are being made.

HIGHLIGHTS OF THE READING REPORT

Major findings of the Reading Assessment in North Carolina are as follows:

- On the ITBS, many of North Carolina's third graders scored well above the national average and many scored below the national average. Not enough scored above the national average to cause the state average to be as high as the national average.

- Grade equivalent averages for Vocabulary and Reading Comprehension were 33.4 and 32.2. Hence, the level of development of North Carolina's third graders is exceeded by the national sample of third graders by approximately four-and-one-half months in Vocabulary and nearly six months in Reading Comprehension.

- Many North Carolina pupils scored higher than or within the third grade achievement level (30.0 - 39.0). Sixty-four percent of the North Carolina pupils scored this well on Vocabulary and 54 percent scored this well on Reading Comprehension. Nationally, there were 70 percent and 71 percent of the pupils who scored similarly on Vocabulary and Reading Comprehension, respectively.

- Item-by-item comparisons of national and state ITBS scores show that several items are answered correctly by a larger percentage of North Carolinians than of the nation. However, for most items, about four to five percent more pupils in the national sample answered the items correctly on the Reading Comprehension subtest. Most items of the Vocabulary subtest are answered correctly by one to two percent more pupils in the national sample than in the North Carolina sample.

- The words dragon, whirling, tower and shutter were more familiar to pupils in the national sample than to North Carolinians. The words statue, socket, and injure were more familiar to North Carolinians than to pupils in the national sample.

- Groupings of North Carolina pupils by family income levels, parental education levels, and race/sex categories produce contrasting scoring patterns for reading achievement.

- North Carolina's third graders were judged to be performing satisfactorily on five of the eleven reading objectives measured by the objective-based SCORE Reading Comprehension Test. The remaining areas are considered in need of various amounts of remedial attention.

- On the objective-based test, North Carolina's pupils were judged adequate or satisfactory in the areas of reading involving:

  a. Recalling details in material read.

  b. Distinguishing between fact and nonfact.

c. Interpreting and evaluating actions, emotions, and reactions of portrayed characters.

d. Making inferences and drawing logical conclusions.

e. Demonstrating an awareness of the author's purpose and/or viewpoint.

. On the objective-based test, low achievement was indicated by North Carolina pupils in the area of reading involving:

a. Distilling the main idea in material read.

b. Utilizing context clues to interpret new words.

c. Recalling sequence of events in material read.

d. Making judgments and generalizations about material read.

e. Perceiving cause and effect relationships in material read.

f. Drawing analogies in material read.

READING ACHIEVEMENT

Description of Instruments

As part of the 1974 State Assessment of Educational Progress, the reading achievement of 5,000 randomly selected third graders was tested in April, 1974. Half of the 5,000 took the Vocabulary and Reading Comprehension Subtests of the Iowa Tests of Basic Skills (ITBS). The other half were assessed by means of the objective-based Reading Comprehension Test produced by SCORE (School Curriculum Objective-Referenced Evaluation), an organization which creates customized objective-based tests.

The purposes of the SCORE test and the ITBS are complementary. The former gives in-depth, diagnostic information on a well defined set of objectives, while the latter compares North Carolina third graders' reading performance to the performance of a national sample of 20,000 third graders.

The present report will show the results of these two tests by state (North Carolina), region (Mountain, Piedmont, Coastal Plains), family income (low, medium, high), parental education level (1,2,3,4), and race/sex category (black female, black male, white female, white male).

The Vocabulary Subtest of the ITBS contains multiple-choice items on which the student is asked to select the proper word for describing a picture or ending a sentence. Many of the items present "distractor" responses with sounds or spellings similar to those of the correct

response. For example, a picture of a window shutter is followed by the choices shutter, screen, shower, and shudder. Other items present distractors with no apparent relationship to the correct response. For example, pupils are asked to choose among change, try, and wish as verbs associated with "becoming different."

Pictures, Sentences, and Stories are sections of the Reading Comprehension Subtest of the ITBS. All items are multiple-choice. Pictures show situations or details which pupils are asked to recognize. Sentences present facts and details with which pupils agree or disagree. Stories are followed by questions concerning the context, purpose, or evaluation of the passage.

The objective-based SCORE Reading Comprehension Test was designed to measure the objectives listed in the Appendix. Multiple-choice items about stories, pictures, and sentences are divided into clusters to test the degree of achievement of instructional, intermediate, and terminal objectives.

State Results on Iowa Tests of Basic Skills

Based upon the ITBS Reading Comprehension and Vocabulary scores of 2,500 third grade pupils from the North Carolina Assessment sample, the percent of pupils scoring in each whole-year interval of Grade Equivalent (GE) scores is shown in Table 12 below. The table also contains corresponding percentages for pupils in the national norm group of 20,000 pupils.

TABLE 12

PERCENTAGES OF STUDENTS IN NORTH CAROLINA SAMPLE AND IN NATIONAL SAMPLE SCORING WITHIN VARIOUS WHOLE-YEAR GRADE EQUIVALENT INTERVALS

Grade Equivalent Intervals	ITBS Reading Subtests			
	Vocabulary		Reading Comprehension	
	N. C.	Nation	N. C.	Nation
60-69	2.3%	2.0%	0.9%	4.0%
50-59	4.5%	12.0%	8.5%	13.0%
40-49	22.4%	27.0%	17.8%	26.0%
30-39	35.0%	29.0%	27.0%	28.0%
20-29	22.1%	23.0%	29.9%	24.0%
10-19	12.5%	6.0%	15.5%	4.0%
00-09	1.2%	0.0%	0.4%	0.0%

A substantial number of North Carolinians scored in each range of GE scores. The national sample has 50 percent of its pupils scoring above the national average (Grade Equivalent of 38.0 for Reading Comprehension and Vocabulary). However, in the North Carolina sample only 34.5 percent of the pupils scored above the national average in Reading Comprehension, and only 30.4 percent were above the national average in Vocabulary. This implies that North Carolina's scores are not distributed the same as those of the nation although the range of scores is approximately the same. Table 12 shows a disproportionately high percentage of North Carolina pupils in the 10-29 GE range and a low percentage in the 40-59 range.

In Grade Equivalent averages, North Carolina's pupils scored at 33.4 and 32.2 for Vocabulary and Comprehension respectively. Since the pupils were tested during the eighth month of third grade enrollment, does this mean that they are four and a half to six months behind the nation in reading? The answer is not an unqualified "yes or "no." The North Carolina averages lie between the averages of 31 and 41 attained by pupils in the national norm group during their first month of third and fourth grade enrollment respectively. Therefore, the averages indicate a level of development in reading of the second or third month of third grade for those pupils at the center of North Carolina's score distribution.

State Item Analysis of ITBS

An item-by-item comparison by percentage achievement for North Carolina and the nation is presented in Figures 1-4. (See pages 32-33.) A high degree of consistency of the test is displayed by the similarity of the state and national profiles on Vocabulary, Pictures, Sentences, and Stories. In general, the distance between the profiles, representing item achievement difference levels of state and nation, remains almost constant across items. There seems to be a tendency for the state and national profiles to approach each other in the items near the end of each subsection.

Of particular interest are those items in which North Carolina achievement deviates farthest from national achievement. In the Vocabulary subtest, the words dragon, whirling, tower, and shutter were more

familiar to pupils of the nation than to North Carolinians. However, a larger percentage of the North Carolina sample than of the national sample was able to identify the words statue, socket, and injure. Ability to recognize details in pictures of children wearing gloves, a snowman as a target, a girl with blonde hair, and a father reading a road map was more prevalent among the pupils of the national sample, but North Carolinians more readily recognized the teacher wearing jewelry and mother sewing a dress.

In the section on sentences stating factual details, results showed that a higher percentage of the North Carolina sample than of the national sample know that your shadow is longer in the morning than at noon. Yet the facts that Jean, who lives on the fourth floor, has to go up to visit Sara on the tenth floor and the moon looks bigger as you get closer to it were better known to the national sample than to North Carolina third graders.

State Results on ITBS According to Family Income

A breakdown of ITBS reading scores by family income is shown in Table 13 below and in Figures 5 and 6 on page 34. Three levels of family income (under $3,000; $3,000-$15,000; over $15,000) divided the third grade sample into percentages of 15.5, 76.3, and 8.2 respectively.

Pupils of extremely low income families averaged seven months below the state average and 12 - 13 months below the national average on Reading Comprehension (GE=25.0) and Vocabulary (GE=26.1). The middle income group averaged very close to the state average on both subtests.

Average scores of the high income group exceeded the national average by 4.3 months in Reading Comprehension (GE=42.3) and 5.1 and months in Vocabulary (GE=43.1).

TABLE 13

STATE RESULTS BY FAMILY INCOME ON ITBS READING SUBTESTS

Family Income	Percent of N. C. Sample in Each Family Income Category	Grade Equivalent Averages on ITBS Reading Subtests	
		Vocabulary	Comprehension
Low (Under $3,000)	15.5%	26.1	25.0
Medium ($3,000-$15,000)	76.3%	33.5	32.3
High (Over $15,000)	8.2%	43.1	42.3

State Results on ITBS According to Parental Education

As shown in Table 14 on page 31 and in Figures 7 and 8 on page 35, parental education level is closely associated with scores in Comprehension and Vocabulary. Pupils whose parents' education level was less than eighth grade (Level 1) scored only slightly below pupils whose parents attained more than eighth grade but less than high school (Level 2). However, pupils having at least one parent who finished high school (Level 3) or beyond (Level 4) scored well above those whose

parents did not finish high school.

Pupils with at least one parent educated beyond high school exceeded the national average in Comprehension (GE=39.9) and Vocabulary (GE=40.6). Pupils having at least one parent who completed high school scored above the state averages in both subtests (Comprehension GE=33.3, Vocabulary GE=34.9). Among pupils with at least one parent completing the eighth grade but neither parent completing high school, the average was five to six months below the state average in Comprehension (GE=27.0) and Vocabulary (GE=27.7). Averaging seven to eight months below the state average and 12 - 13 months below the national average were pupils whose parents achieved less than eighth grade education. Grade Equivalent scores for this last group of pupils were 24.8 for Comprehension and 25.1 for Vocabulary.

TABLE 14

STATE RESULTS BY PARENTAL EDUCATION LEVEL ON ITBS READING SUBTESTS

Parental Education Level	Percent of N. C. Sample Classified as Having Parents in Given Education Level	Grade Equivalent Averages on ITBS Reading Subtests	
		Vocabulary	Comprehension
1	5.8%	25.1	24.8
2	27.9%	27.7	27.0
3	42.3%	34.9	33.3
4	24.0%	40.6	39.9

Figure 1

STATE AND NATIONAL ITEM PERCENTAGE CORRECT PROFILE
ITBS VOCABULARY SUBTEST

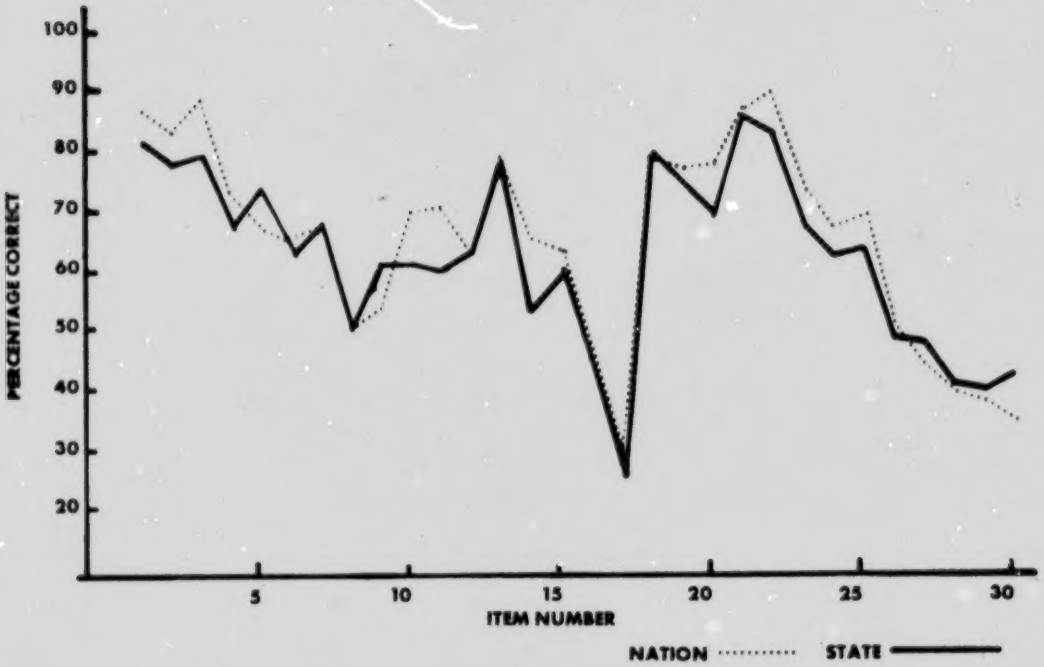


Figure 2

STATE AND NATIONAL ITEM PERCENTAGE CORRECT PROFILE
ITBS PICTURES SUBTEST

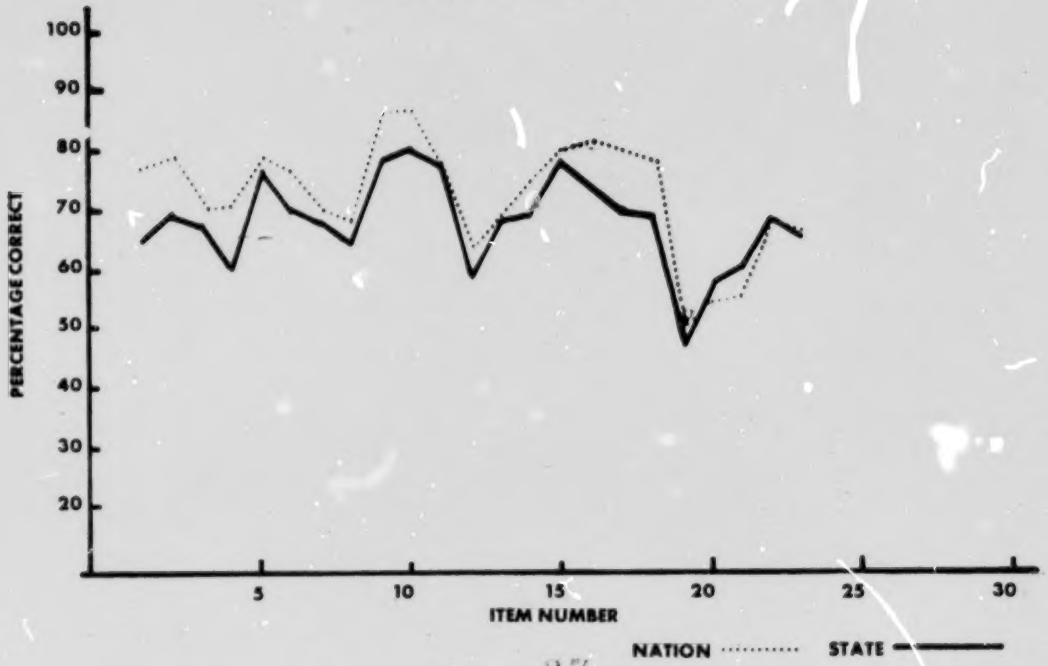


Figure 3

STATE AND NATIONAL ITEM PERCENTAGE CORRECT PROFILE
ITBS STORIES SUBTEST

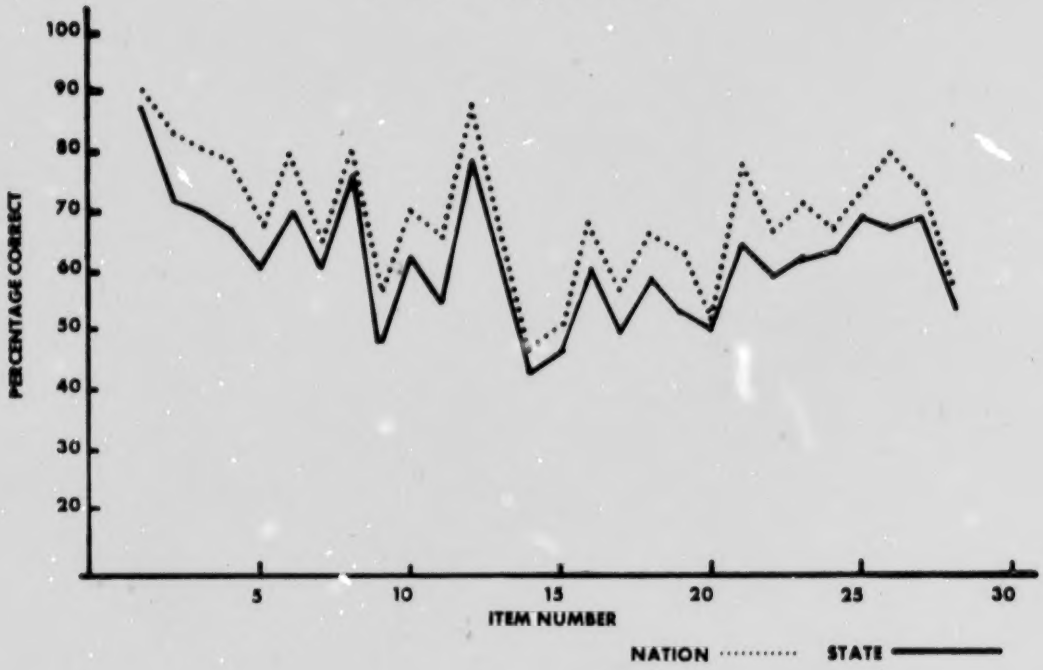


Figure 4

STATE AND NATIONAL ITEM PERCENTAGE CORRECT PROFILE
ITBS SENTENCES SUBTEST

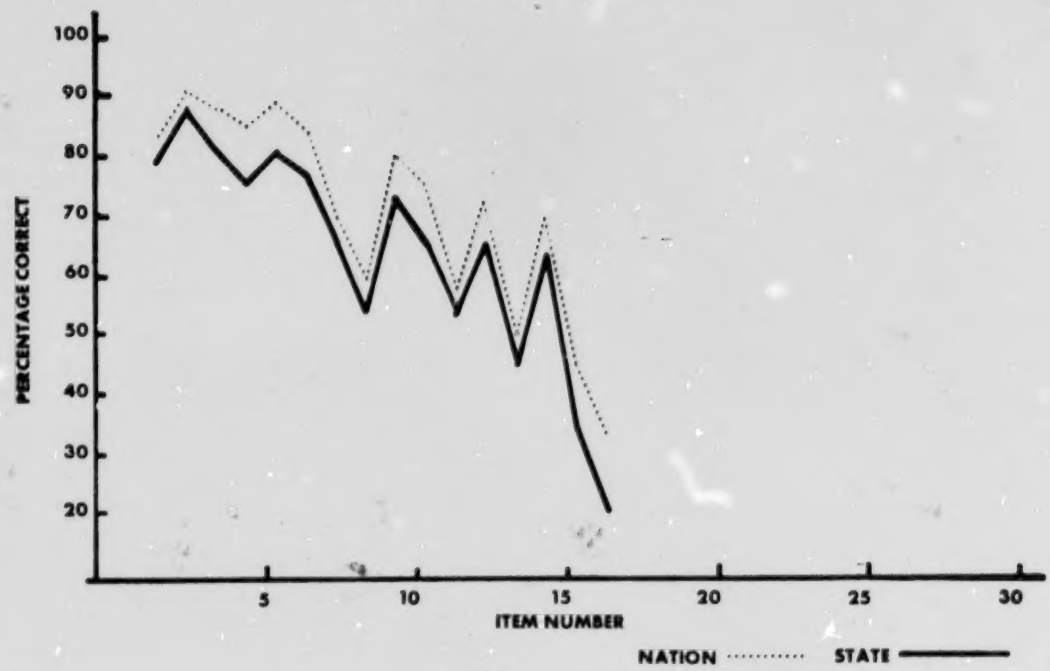


Figure 5

AVERAGES ON ITBS VOCABULARY SUBTEST BY FAMILY INCOME

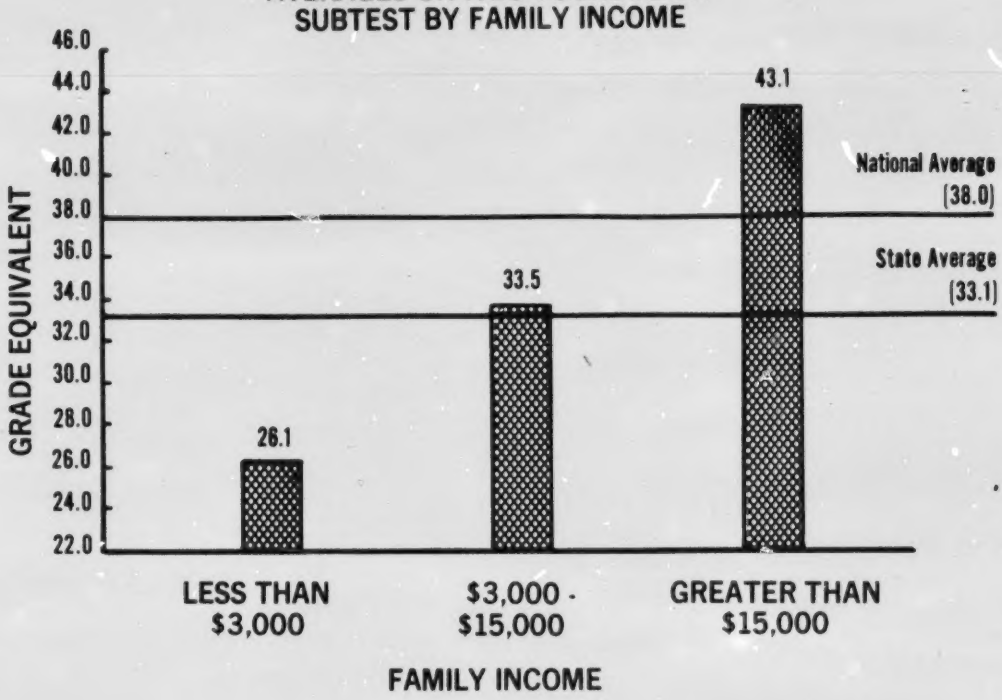


Figure 6

AVERAGES ON ITBS READING COMPREHENSION SUBTEST BY FAMILY INCOME

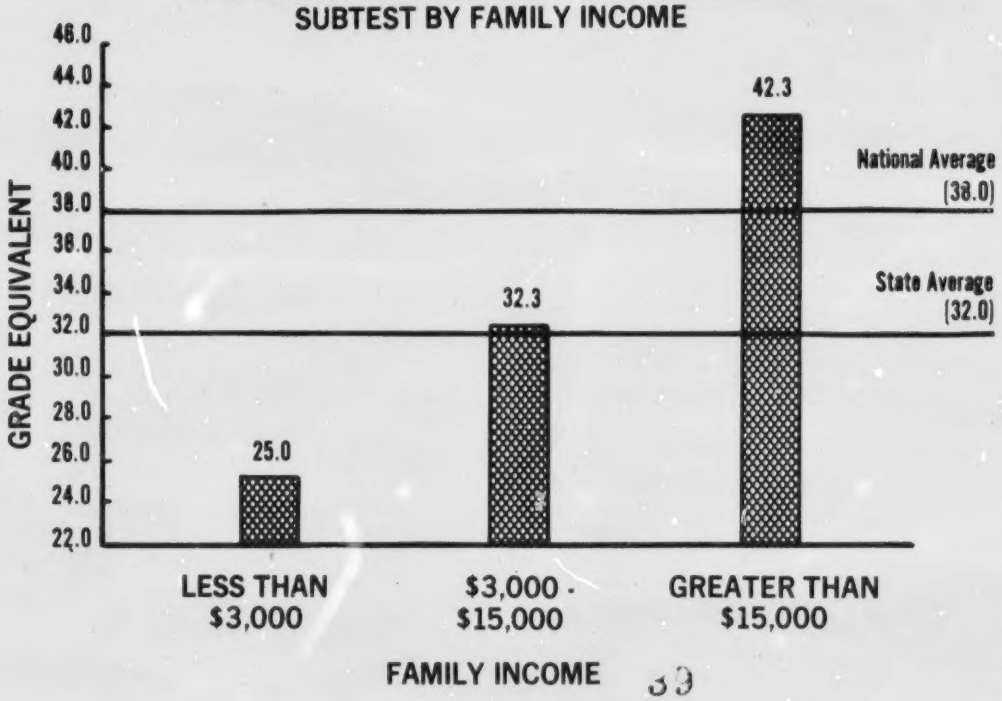


Figure 7

AVERAGES ON ITBS VOCABULARY SUBTEST BY EDUCATION LEVEL OF PARENTS

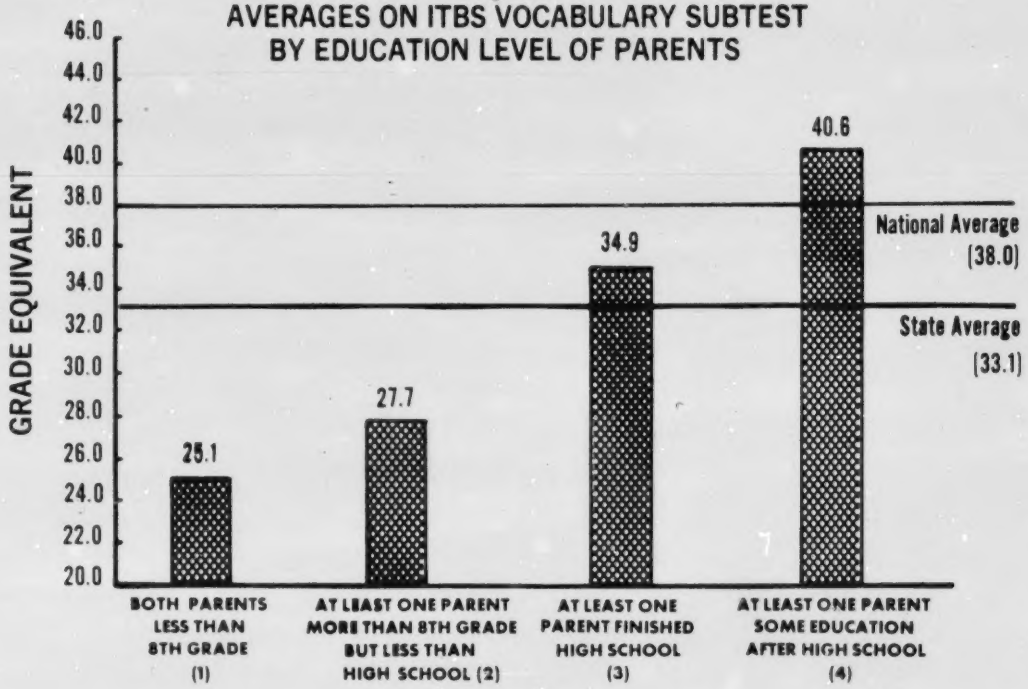
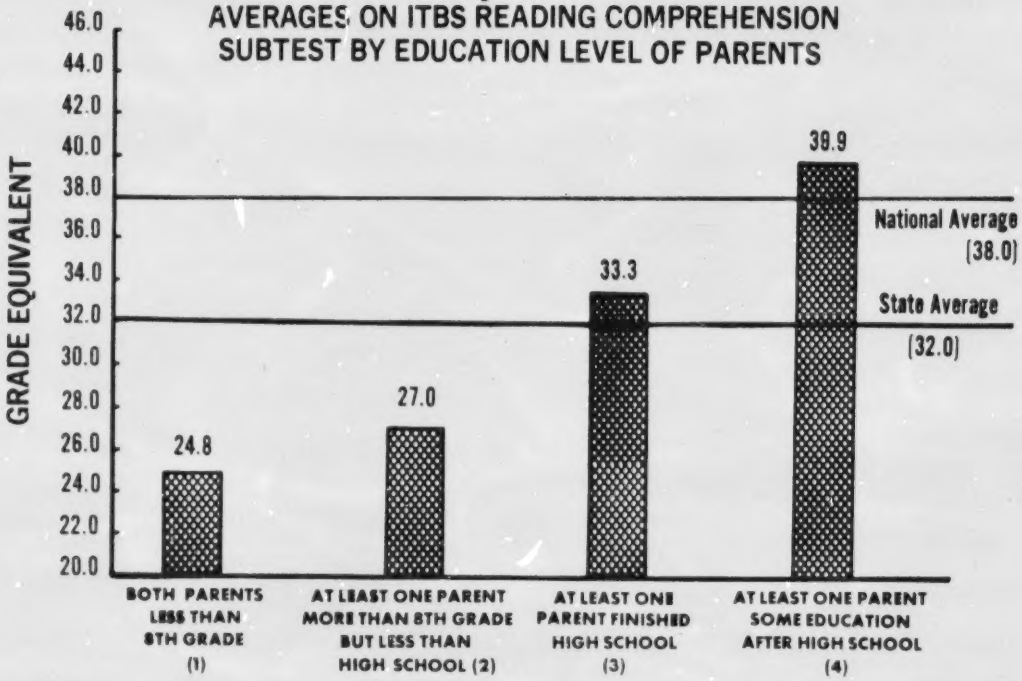


Figure 8

AVERAGES ON ITBS READING COMPREHENSION SUBTEST BY EDUCATION LEVEL OF PARENTS



State Results on ITBS According to Race and Sex

ITBS reading results have been analyzed according to four race/sex categories: black male, black female, white male, and white female. Categories in order of increasing GE scores are black male (Vocabulary 25.2, Comprehension 23.7), black female (Vocabulary 27.1, Comprehension 26.2), white male (Vocabulary 34.6, Comprehension 33.1) and white female (Vocabulary 37.5, Comprehension 36.9). Black males averaged two to three months below the scores of black females, while white males averaged three to four months below the scores of white females. Differences between races were smaller among males (9.4 for both subtests) than among females (10.4 for Vocabulary and 10.7 for Comprehension).

State Results on Objective-Based SCORE Reading

Comprehension Test

Results of the objective-based SCORE Reading Comprehension Test will be presented in terms of (1) item percentages and (2) achievement of each objective. The Appendix contains a list of objectives and items used in the test. Each objective is measured by two to five items. The Appendix also contains the percentage of North Carolina pupils correctly responding to each item of the test.

Achievement of objectives is reported in this section and in the Appendix as the percentage of pupils correctly responding to no items in the group, the percentage correctly responding to at least one of the items, the percentage correctly responding to at least two of the items, etc.

Item achievement will be presented later in the discussion of differences between family income levels parental education levels, regions, races, and sexes. (See pages 48-51.) Overall achievement of objectives will only be discussed for the state as a whole.

A constant criterion or mastery level (such as "An objective is mastered by a pupil if he or she correctly responds to at least two out of three items") is not stated for all the objectives. A constant mastery level would be highly controversial for several reasons: the variety of curricula used throughout the state, the arbitrary nature of such a mastery level, and the heterogeneity of the student population. Instead of a mastery level, several achievement levels are reported here.

A survey of outstanding third grade teachers was recently conducted to obtain a measure of importance for each of the reading objectives. Respondents were also asked to indicate how well the items served to measure each stated objective. The 11 reading objectives that follow are arranged into three groups according to the combined indicators of importance of the objective and how well the objective was measured by the items. Table 15 shows those groups of objectives.

TABLE 15

GROUPS OF OBJECTIVES AND ATTRIBUTES OF EACH GROUP

Group	Objectives	Attributes of Objectives in Group
A	1,2,3,5,8	Objectives rated very important and well measured by items.
B	4,6,7,10,11	Objectives rated very important and adequately measured by items.
C	9	Objectives rated somewhat important and adequately measured by items.

Group A: Objectives Very Important and Well Measured by Items

Objective 1

"The pupil will be able to distill the main idea in what he reads and will be able to distinguish details as subordinate to that idea." Four items were used to measure the objective:

Ninety-seven percent (97%) of the pupils correctly responded to at least one item.
Eighty-five percent (85%) of the pupils correctly responded to at least two items.
Fifty-eight percent (58%) of the pupils correctly responded to at least three items.
Twenty-six percent (26%) of the pupils correctly responded to all four items.

Of the four items used to measure Objective 1, the items involving selecting the sentence that best describes a given picture and identifying an unnamed object in a paragraph were the highest achieved. The percentage of students correctly responding to those two items were 88 percent and 78 percent respectively. Lower achievement levels of 56 percent and 43 percent respectively were attained for the items involving selecting an appropriate alternate title for a story and analyzing the main idea of a story by reading similar selections and choosing the selection with the same main idea.

Since teachers consider the objective a very important one and also rate the items as good measures of the objective, the statistics indicate a fairly low level of achievement for this objective. Only 58 percent of the pupils correctly responded to at least three of the four items. Also, the item most closely associated with the main objective was achieved at the lowest level.

Objective 2

"The pupil will demonstrate the ability to recall details in material he has read." Three items were used to measure the objective:

Ninety-four percent (94%) of the pupils correctly responded to at least one item.
Seventy-four percent (74%) of the pupils correctly responded to at least two items.
Forty-four percent (44%) of the pupils correctly responded to all three items.

The three items measuring the objective were achieved by 65 percent, 70 percent, and 77 percent respectively. Items involved matching a specific fact concerning a particular character with the name of that character, recalling the characters in a given selection by identifying the speakers of a given characteristic quotations, and identifying facts after reading an informational passage.

The level of achievement of achievement of Objective 2 is considered satisfactory. Item percentages are within a reasonable range, while the percentage of pupils correctly responding to at least two out of three items is acceptable.

Objective 3

"The pupil will demonstrate the ability to utilize context clues to interpret ~~new~~ words." Three items were used to measure the objectives:

Eighty-nine percent (89%) of the pupils correctly responded to at least one item
Sixty-eight percent (68%) of the pupils correctly responded to at least two items.
Thirty-seven percent (37%) of the pupils correctly responded to all three items.

While 56 percent of the pupils were able to use the context to determine the omitted familiar word in an incomplete sentence, almost three-fourths (73 percent) correctly determined the meaning of an

unfamiliar word in a sentence by selecting from a list the word which has the same meaning as the unfamiliar one. In the former case, context served as the only clue for choosing the correct answer while the latter case presented two clues - context and a synonym.

Performance on Objective 3 may be considered a little less than desirable. The analysis necessary for correct response to the item involved only examination of a sentence for each item. It seems reasonable to expect that more than 68 percent of the pupils could correctly respond to at least two out of the three items.

Objective 5

"The pupil will demonstrate the ability to identify and distinguish between fact and non-fact in material he has read." Three items were used to measure the objective:

Ninety-nine percent (99%) of the pupils correctly responded to at least one item.
Ninety-seven percent (97%) of the pupils correctly responded to at least two items.
Eighty percent (80%) of the pupils correctly responded to all three items.

A very high percentage of third grade pupils showed their ability to recognize fiction, humor, and exaggeration by correctly responding to the items measuring this objective.

Correct response was 97 percent for each of the two items involving distinguishing real characters from fictional ones in pictures and identifying the humorous or exaggerated portion of a given illustration. Eighty-two percent of the pupils responded correctly to distinguishing fact from fiction in particular sentences from a given story.

Modes of item presentation may be considered a factor in the different levels of achievement among the items. The items receiving the

highest percentage correct response involved pictures, while sentences provided the stimulus for the remaining item. All percentages, however, are notably high for this objective. A high level of achievement is indicated for Objective 5.

Objective 8

"The pupil will demonstrate the ability to interpret and evaluate the actions, emotions, and reactions of characters portrayed in material he has read." Five items were used to measure the objective:

Ninety-nine percent (99%) of the pupils correctly responded to at least one item.
Ninety-six percent (96%) of the pupils correctly responded to at least two items.
Eighty-eight percent (88%) of the pupils correctly responded to at least three items.
Seventy percent (70%) of the pupils correctly responded to four items.
Forty percent (40%) of the pupils correctly responded to all five items.

Although only 65 percent of the pupils were able to decide how a character from a given story would solve a given problem, the task of choosing the facial picture identifying a given emotion was accomplished by 94 percent of the pupils.

Although the mode of item presentation (story versus picture) accounts for part of the difference in achievement of the items, the relative complexity of the tasks is also a factor. Careful evaluation of a character's emotions is necessary in order to predict his reaction to different circumstances. Identification of emotion in facial expressions requires less evaluation.

Hardly any (one percent) of the pupils missed all the items, and 70 percent missed no more than one item out of five. The objective was achieved at an acceptable level.

Group B: Objectives Very Important and Adequately Measured by the Items

Objective 4

"The pupil will demonstrate the ability to recall sequence of events in material he has read." Two items were used to measure the objective:

> Eighty-six percent (86%) of the pupils correctly responded to at least one item.
> Forty-five percent (45%) of the pupils correctly responded to both items.

One item, arranging a group of pictures in chronological order depicting the content of a given story was achieved by 73 percent of the pupils. The other item, identifying the order in which a consumer product becomes available to him, was correctly answered by 57 percent of the pupils.

Teachers who rated the item quality as a measure of this objective considered the items less desirable than those of many other objectives. The small number of items used to measure the objective is also a handicap in evaluating the student performance. Some of the teachers' reluctance to rate the items as "good measures" may be due to the lack of the element of recall within the items.

Low achievement on this objective may be attributed to (1) the low achievement of one item and (2) the absence of the tendency for the same group of pupils to answer both items correctly. However, low achievement may also reflect some deficiency in pupils' ability to arrange events sequentially.

Objective 6

"The pupil will demonstrate the ability to make inferences and to draw logical conclusions concerning the material he has read." Five items were used to measure the objective:

Ninety-seven percent (97%) of the pupils correctly responded to at least one item.
Eighty-seven percent (87%) of the pupils correctly responded to at least two items.
Seventy-one percent (71%) of the pupils correctly responded to at least three items.
Fifty-one percent (51%) of the pupils correctly responded to at least four items.
Twenty-four percent (24%) of the pupils correctly responded to all five items.

Four of the items measuring the objective were correctly answered by 60, 63, 63, and 64 percent of the pupils respectively. These items involved inferring the setting or content of a story from its title, selecting a book title relevant to a given situation, reading a poem and selecting the season it is describing, and selecting a sentence that best predicts subsequent action in a given uncompleted narrative. The item with the highest achievement was correctly answered by 79 percent of the pupils. It measured the pupils' understanding of implied reasons for an action in a given narrative.

A majority of the items (three of five) was correctly answered by 71 percent of the pupils. Fewer than half of the pupils missed more than one of the five items. In consideration of the difficulty of the items, the complexity of the tasks, and the developmental level required for achievement of the objective, the pupils of North Carolina performed adequately and consistently on this objective.

Objective 7

"The pupil will demonstrate the ability to evaluate and make judgments and generalizations about material he has read." Three items were used to measure the objectives:

Eighty-nine percent (89%) of the pupils correctly responded to at least one item.
Fifty-seven percent (57%) of the pupils correctly responded to at least two items.
Twenty-four percent (24%) of the pupils correctly responded to all three items.

The item with the highest achievement (62 percent response) involved the identification of personal characteristics that make a character from a reading selection a person to be remembered. Lowest achievement (50 percent correct response) was attained on the item requiring selection of the relevant item supporting a given judgment.

Objective 7 is one of the most difficult reading objectives to master as well as to measure. When these limitations are recognized, it is apparent that the items associated with the objective were not easy for the pupils. Only 57 percent of the pupils correctly responded to at least two out of three items. The low achievement may reflect minimal objective achievement, difficulty inherent in the statement of the items, or a slight item-objective mismatch.

Objective 10

"The pupil will demonstrate the ability to perceive cause and effect relationships in what he reads." Three items were used to measure the objective:

Eighty-seven percent (87%) of pupils correctly responded to at least one item.

Fifty-five percent (55%) of the pupils correctly responded to at least two items.
Twenty-two percent (22%) of the pupils correctly responded to all three items.

One of the three items should be disregarded as a measure of the objective. The item asked the pupils to distinguish the cause-effect relationship in pairs of statements based on a given narrative by indicating whether a given statement is a cause or an effect. A combination of attributes of the item prevents valid measurement: (1) Directions for item administration instructing the pupils to "find the sentence that tells what happened because of the other sentence and darken the space beside it" are unclear and ambiguous. (2) Only two choices are available for response to this item. Hence 50 percent of the pupils would be expected to respond correctly even if all responses were random. (3) Only 54 percent of the pupils correctly responded to the item. (4) Twenty-eight percent of responding teachers rated the item a poor measure of the objective.

The two remaining items can be considered valid measures of the objective. The items involve analyzing the probable cause of an event from a particular passage by selecting the most logical cause and matching a causal clause with its corresponding effect by choosing the effect from a list. Correct responses to these two items were made by 54 percent of the pupils respectively. These results indicate a low level of achievement of this important objective.

Objective 11

"The pupil will demonstrate the ability to recognize, make comparisons, and draw analogies in materials he has read." Four items were

used to measure the objective:

Ninety-six percent (96%) of the pupils correctly responded to a least one item.
Eighty-four percent (84%) of the pupils correctly responded to at least two items.
Sixty-three percent (63%) of the pupils correctly responded to at least three items.
Thirty-five percent (35%) of the pupils correctly responded to all four items.

The item with the highest achievement for Objective 11 was recognizing the likenesses of objects by choosing a written statement that tells how all the items drawn in the pictures are alike. Eighty-eight percent of the pupils correctly responded to the item. Applying principles contained in one story to those in another story by matching similarities and differences was the purpose of the lowest achieving item, which 59 percent of the pupils answered correctly.

Recognizing similarities and differences among objects was easier for the pupils than matching similar or different stories. The presence of pictures was also an aid to the pupils in the tasks. On the average, pupils in North Carolina appear to have a high degree of understanding of concrete analogies. A lower degree of achievement is indicated for recognizing abstract likenesses and differences within stories.

Group C: Objectives Somewhat Important and Adequately Measured by Items

Objective 9

"The pupil will demonstrate an awareness of an author's purpose and/or the author's point of view." Three items were used to measure the objective:

Ninety-five percent (95%) of the pupils correctly responded to at least one item.
Seventy-five percent (75%) of the pupils correctly responded to at least two items.
Thirty-nine percent (39%) of the pupils correctly responded to all three items.

Awareness of the author's purpose was not considered as important as many other reading objectives by the teachers who responded to the assessment survey. Also, the items were not regarded by the responding teachers to be quite as good measures as other items. However, pupils responded well to the items; three-fourths of the pupils correctly answered at least two out of three.

The lowest achievement (57 percent correct response) for the objective involved comprehension of the lesson being taught in a selected narrative. The remaining two items were achieved by 75 percent and 77 percent of the pupils. Those items involved describing the author's attitude toward the main character and distinguishing between a biased and an unbiased source of information.

Comments about State Results on SCORE Test

Statistics regarding the 11 objectives in reading reflect the achievement of North Carolina's third graders on the stated educational outcomes only to the extent that the items are adequate indicators of the stated outcomes. Unfortunately, the inherent difficulty level of the items used to measure an objective is also reflected in the objective statistics. Thus, caution must be exercised in comparisons of the relative achievement levels of different objectives. Such comparisons are especially difficult if the objectives are measured with differing

numbers of items.

The preceding pages have discussed the general statewide achievement of the North Carolina sample of third graders on the objective-based SCORE Reading Comprehension Test. The next sections will analyze the statewide SCORE results by family income level, parental education level, and race/sex category. The final sections of this report will deal with regional results of the ITBS and the SCORE test.

State Results on SCORE Test According to Family Income

The middle income group profile is almost the same as the state profile. In fact, no item percentages differ by more than three percentage points between state and middle income classifications.

Performance of high-family-income pupils was as much as 40 percentage points ahead of performance of low-family-income pupils on seven of the reading items. For example, Item 3 of Objective 1 was accomplished by 69 percent of the high income group and only 29 percent of the low income group. Correct response to the item required the pupil to read a story and choose an alternate title for it from the response Feeding Goldfish, The Beating Fins, Tricking Goldie, and The Aquarium. Although Tricking Goldie was the correct response, Feeding Goldfish received 43 percent of the responses from the low income group.

Other items with large score differences between family income groups involved the identification of a story character who has red hair, choosing a synonym for "clever," choosing the most likely topics of a story in which only the title "The Secret Cave" is given, responding that

horses have been put into the meadow (rather than barn or trailer) to exercise and eat fresh grass, and recognizing that "don't be greedy" is a lesson to be gained from a story.

State Results on SCORE Test
According to Parental Education

Performance is generally below the state percentages for education Level 1 (no high school) and 2 (some high school), rising above the state percentages for Level 4 (beyond high school). Performance for Level 3 (finished high school) is very near the indicated state performance.

Items which best differentiated among pupils of different parental education levels are generally the same items which best discriminated among family income groups. Two exceptions are noted: Item 3 under Objective 1 and Item 3 under Objective 6. The first of these two items (choosing an alternate title for the goldfish story) did not show the greatest difference in performance among parental education levels, although that item did show the greatest difference in performance among family income levels. The second of these two items was correctly answered by 76 percent of Level 4 pupils and 33 percent of Level 1 pupils. That item presents three book titles and asks the pupils to choose the title telling about the way people in this country lived 100 years ago.

State Results on SCORE Test
According to Race and Sex

Performance is generally above the state percentages for white males

and white females but is generally below state percentages for black males and black females. Percentage scores on 33 of the 38 items of the SCORE Reading Comprehension Test show that the groups in order of increasing achievement are black males, black females, white males, and white females. This is the same pattern found in the ITBS results.

Items that show the largest percentage differences between black males and black females involved perceiving relationships by analyzing a group of items and selecting the one not related to the others (black males 46 percent, black females 63 percent), understanding of implied reasons for an action in a given narrative (black males 62 percent, black females 75 percent), and matching a causal clause with the corresponding effect from a list of effects (black males 34 percent, black females 45 percent).

The largest item percentage differences between white males and white females occurred within items involving matching ideas contained in one story with those of a similar but unfamiliar story (white males 67 percent, white females 80 percent), analyzing a group of items and selecting the one not related to the others (white males 65 percent, white females 76 percent, analyzing the probable cause of an event from a particular passage (white males 55 percent, white females 66 percent), and identifying the unnamed object described in a paragraph (white males 65 percent, white females 76 percent.

Generally, the items showing large percentage differences between white males and white females also showed substantial differences between black males and black females. Correspondingly, large sex differences

among blacks usually are accompanied in the same item by substantial sex differences among whites. However, only one item showed large sex differences within both races, as described in the previous two paragraphs. Substantial sex differences were more prevalent among whites than among blacks.

Differences between black males and white males were the largest for items asking the pupil to use context to determine the omitted familiar word in an incomplete sentence (black males 34 percent, white males 63 percent), determine the meaning of an unfamiliar word in a sentence by selecting from a given list the word which has the same meaning as the unfamiliar one (black males 54 percent, white males 80 percent), and apply principles contained in one story to those in another story by matching similarities and differences (black males 40 percent, white males 65 percent).

Black females and white females differed most in their performance on items involving the use of context to determine the omitted familiar word in an incomplete sentence (black females 36 percent, white females 71 percent), inference of the setting or content of a story from its title (black females 48 percent, white females 71 percent), and identification of personal characteristics that make a given character from a reading selection a person to be remembered, (black females 52 percent, white females 75 percent).

Surely many factors are involved in the measured differences in scores between sexes and among races. Identification of many of these factors will assist in our understanding of achievement levels. It has already been shown that family income and level of parental education are closely associated with achievement on North Carolina's assessment instruments.

Regional Results on ITBS and SCORE Test

North Carolina is divided into three geographic regions -- Mountain, Piedmont, and Coastal Plains. Although the boundary lines are somewhat arbitrarily drawn, distinctive traits of each region are apparent, as described in the introduction to this report.

Regional breakdowns on the two samples for the reading assessment are an accurate reflection of the geographic breakdown of the population. Table 16 below shows the number and percentages of sampled pupils within each region for each reading test. Subsequent pages will describe the regional results on the ITBS and the SCORE test.

TABLE 16

NUMBER AND PERCENTAGE OF SAMPLED STUDENTS
IN EACH GEOGRAPHIC REGION

Region	Test	
	ITBS	SCORE
Mountain	333/14%	322/14%
Piedmont	1273/54%	1234/53%
Coastal	756/32%	789/34%

Mountain Region

Pupils in the Mountain Region generally scored above the state average on both the Iowa Tests of Basic Skills and the objective-based

SCORE test. Vocabulary scores of the ITBS for the Mountain Region averaged 36.1, or three months ahead of the state average. ITBS Reading Comprehension scores for the Mountains averaged 34.8, almost three months ahead of the state average. Figure 9 presents Mountain versus state averages on the ITBS subtests.

Results by item and by objective on the SCORE reading test show that the differences between Mountain and state were largest for those items measuring Objective 3 (utilization of context clues to interpret new words) and Objective 6 (making inferences and drawing logical conclusions concerning the material he has read). Mountain performance is exceeded by the state performance on Item 1 of Objective 10 (distinguishing the cause effect relationship in pairs of statements based on a given narrative).

There were more similarities than differences in the performance of Mountain and state pupils. The lack of extreme deviations shows a great deal of consistency among the items as well as consistency among the pupils.

Piedmont Region

Since the Piedmont Region's scores contribute 54 percent of the scores for computing the state averages, it might be expected that there would be little difference in the regional and state scores. ITBS Vocabulary scores (GE=33.1) were identical for state and Piedmont. Reading Comprehension scores for Piedmont and state were 32.2 and 32.0 respectively. Figure 10 shows the comparison between Piedmont and state averages on the ITBS reading subtests.

State performance and Piedmont achievement were also similar on the objective-based SCORE Reading Comprehension Test. State and Piedmont item percentage scores are all within three percentage points.

Coastal Plains Region

Averages on ITBS subtests of Vocabulary and Reading Comprehension were 31.8 and 30.5 respectively for the Coastal Plains. Corresponding averages for the state were 33.1 and 32.0. The state scores are one to one-and-one-half months ahead of the scores for the Coastal Plains, as shown in Figure 11.

State performance and Coastal performance on the objective-based SCORE reading test were very similar. The percent of pupils correctly responding to an item was usually lower for the Coastal Plains Region than for the state. Largest differences between the region and the state occurs within Objectives 6, 7, 10, and 11. Items that contributed most to the differences involved making inferences and drawing logical conclusions concerning the material he has read, identifying personal characteristics that make a given character from a reading selection a person to be remembered, perceiving cause and effect relationships, and drawing analogies in materials he has read.

Summary

This report on reading achievement has discussed the performance of a sample of North Carolina third graders on the Iowa Tests of Basic Skills (Vocabulary and Reading Comprehension Subtests) and the

objective-based SCORE Reading Comprehension Test. Reading achievement has been analyzed and reported according to a number of classifications: family income level, parental education level, race, sex, region, and state. Supplementary figures and tables are found in the Appendix.

DISCUSSION OF THE READING ASSESSMENT

This report began by stating three purposes for the state assessment. One of the purposes called for the assessment of educational progress over time. Obviously, fully meeting this purpose is dependent upon making comparisons with future assessments at the third grade and re-assessing this year's third graders as they advance to subsequent grades. The questions which can be answered by assessment are important in determining the relative effectiveness of the curricula over the years and also to determine the rate of progress which students make as they advance in the school system.

A second purpose was to determine the status of education at the third grade and to report on the status to the school's patrons and decision makers. This was been done by contrasting the pattern of achievement within North Carolina with that of a national norm group. After examining the results, it is clear that many students in North Carolina are achieving well - both in terms of norm-referenced tests and in terms of performance tests on specified reading skills. Other students, who scored below the national average, may be achieving as well as their counterparts in the national norm group. In other words, there is no evidence available to suggest that achievement varies between pupils in North Carolina and the nation if comparisons are made of students who have similar characteristics. There are, however, many more pupils in North Carolina that have characteristics or environmental settings which are associated with lower cognitive achievement. The question is: can these factors be improved so that achievement will

be raised in North Carolina at a faster rate than in the nation as a whole? If the question is answered negatively, educational achievement cannot be expected to exceed the national average. Instead it can be expected to improve incrementally over time with perhaps more improvement in areas judged to have high priority and, therefore, have increased emphasis in the curriculum and have increased resources allotted to them.

A third purpose of the assessment was to seek means of improving the educational opportunities for pupils in North Carolina. This assessment has examined some of the variables which are associated with high or low achievement. Some of the important variables such as low family income and education level, ethnic membership, the degree to which families value education and so forth are interrelated and difficult for the educational system to affect in the short run. There are, however, actions which administrators and teachers can take which should have a positive impact on reading achievement. Priorities can be placed on identifying the reading skills which are deficient within the state and insuring that effective instructional procedures are planned and implemented to correct the deficiencies.

The assessment information can be used at the regional level in identifying objectives which are not being met satisfactorily. Judgments will then have to be made to determine if the curriculum within the local school districts includes adequate instruction for achieving these objectives. If not, the curriculum can be modified by local school units within the regions. In other cases, the curriculum in reading may be appropriate in content but the instructional

techniques are not effective with all pupils. Experimentation based upon valid research findings will be necessary to find more effective instructional procedures for those pupils who have reading deficiences. Experimentation of this type should be explored on a pilot basis to determine which approaches work best with pupils who have a variety of learning needs. Close collaboration between researchers, evaluators, educational developers, and practitioners is essential for maximum success in these endeavors.

APPENDICES

NORTH CAROLINA AND NATIONAL DEMOGRAPHIC DATA

Variable (Year)	Source Code	North Carolina	U.S.(Average)	Rank
Estimated Population (1973)	1-3	5,273,000	209,851,000	12
Median Years of Schooling Completed by the Population 25 Years Old and Older (1970)	2	10.6	(12.1)	46
Median Family Income (1970)	2	$7,770	($9,867)	40
Percent of Population that is Black (1970)	2	22.2	(11.1)	6
Land Area (Square Miles)	2	48,798	3,536,855	29
Population Per Square Mile (1970)	2	104	(57)	17
Percent of Population Classified Rural (1970)	2-4	55.0	(26.5)	5
Median Age of Population (1970)	2	26.6	(28.3)	15
Per-Capita Personal Income (1972)	1-5	$3,799	($4,492)	34
Average Household Effective Buying Income (1972)	1-6	$7,441	($8,605)	39
Percent of Household with Cash Incomes Under $3,000 (1972)	1-6	19.4	(15.4)	12
Percent of Housing Lacking Some or All Plumbing Facilities (1970)	2	13.9	(5.5)	7
Percent of Housing with 1.01 or More Persons Per Room (1970)	2	10.0	(8.0)	13
Percent of Homes with Telephone Available (1970)	2	77.5	(87.3)	45
State and Local Tax Revenue Per $1,000 of Personal Income During 1971-72	3-1	$111.17	($126.94)	37
Percentage of Persons 25 Years and Over with Less Than 5 Years of School Completed (1970)	2	10.0	(5.5)	7
Percentage of Persons 25 Years and Over With 4 Years of High School or More (1970)	2	38.5	(52.3)	48
Per-Capita State and Local Tax Revenue During 1971-72	3-1	$376.58	($522.49)	43
Per-Capita Direct General Expenditures of State and Local Governments During 1971-72	3-1	$563.45	($801.38)	49

Variable (Year)	Source Code	North Carolina	U.S.(Average)	Rank
Amount of Expenditures for Local Schools by State and Local Governments per $1,000 of Personal Income During 1971-72	3-1	$44.98	($53.27)	46
State and Local Government Expenditures for All Public Education As a Percent of Total General Expenditures in 1971-72	3-1	42.7	(38.9)	15
Per-Capita Total Expenditures of State and Local Governments for all Education During 1971-72	1-1	$240.41	($311.60)	45
Per-Capita State and Local Governmental Expenditures for Higher Education (includes community colleges) During 1971-72	1-1	$76.80	$76.57	26
Per-Capita State and Local Expenditures for Local (public) Schools (Including Capital Outlay) During 1971-72	1-1	$152.37	($219.27)	47
Revised Current Expenditure Per Pupil in Average Daily Membership: 1971-72	1-2	696	906	36
1972-73	1-2	765	968	37
(Estimate) 1973-74	1-2	846	1048	33

Source Code:
First Digit is Main Scource

1 = National Education Association Ranking of the States, 1974

2 = Bureau of the Census, County and City Data Book, 1972

3 = Tax Research Division, North Carolina Department of Revenue, "Ranking of North Carolina Among the 50 States With Respect to Revenues and Expenditures, March, 1974"

Second Digit is Primary Source

1 = Bureau of Census, Governmental Finances in 1971-72

2 = NEA, Estimates of School Statistics

3 = Bureau of Census, Estimates of the Population of the States

4 = Bureau of Census, General Social and Economic Characteristics

5 = "Survey of Current Business"

6 = "Sales Management"

Figure 9

MOUNTAIN VS. STATE AVERAGES ON THE ITBS READING SUBTESTS

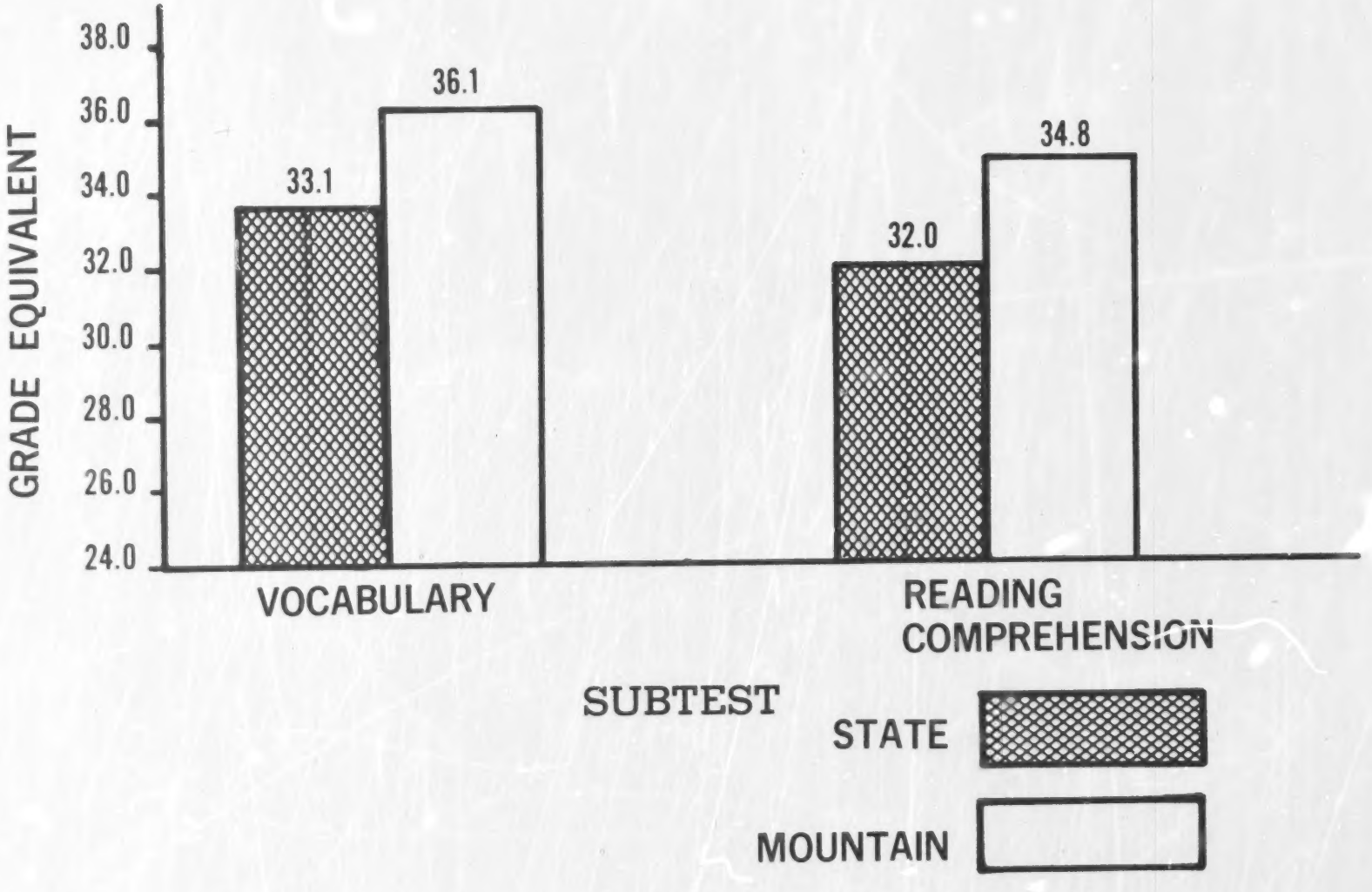


Figure 10

PIEDMONT VS. STATE AVERAGES ON THE ITBS READING SUBTESTS

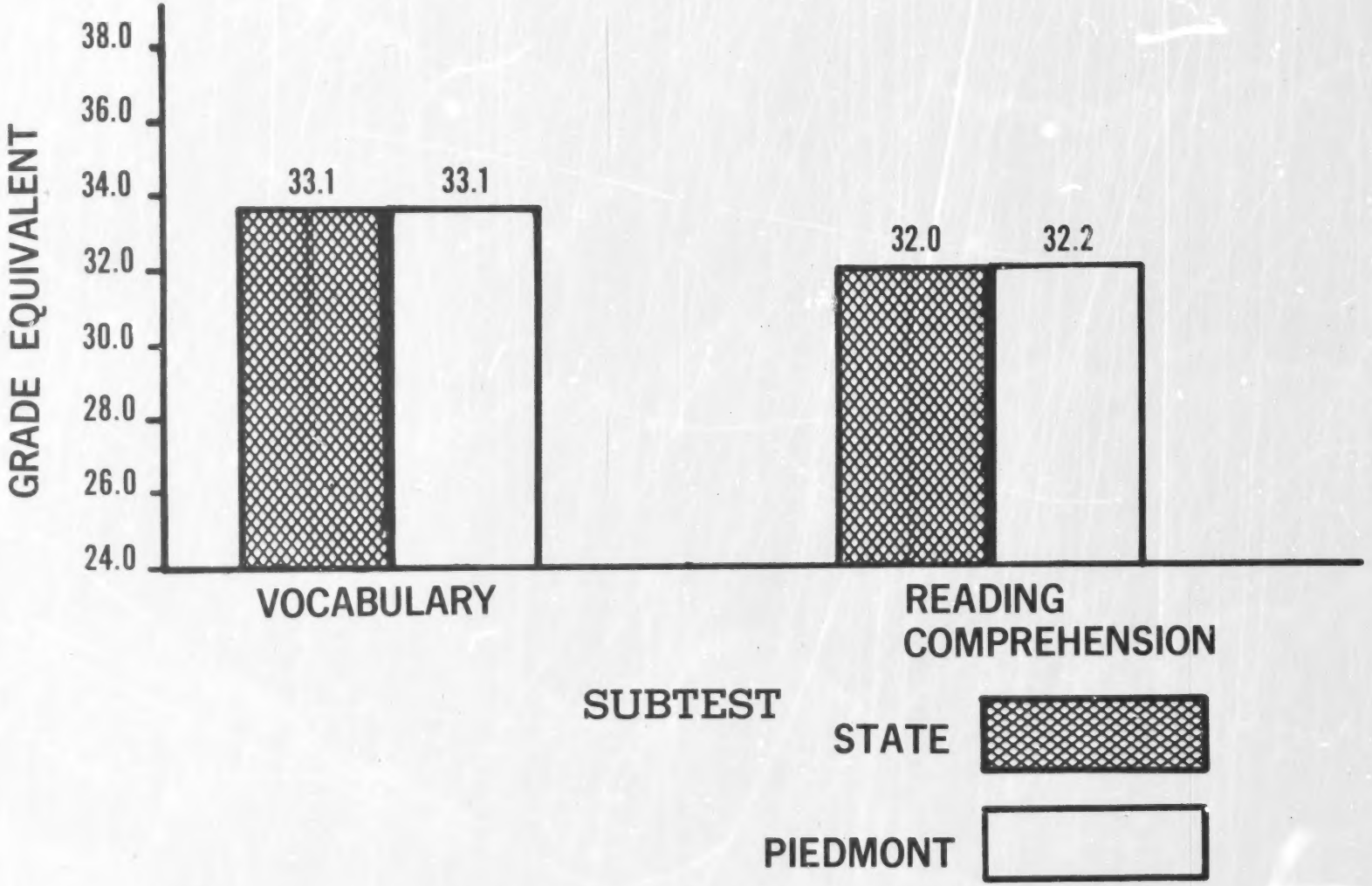
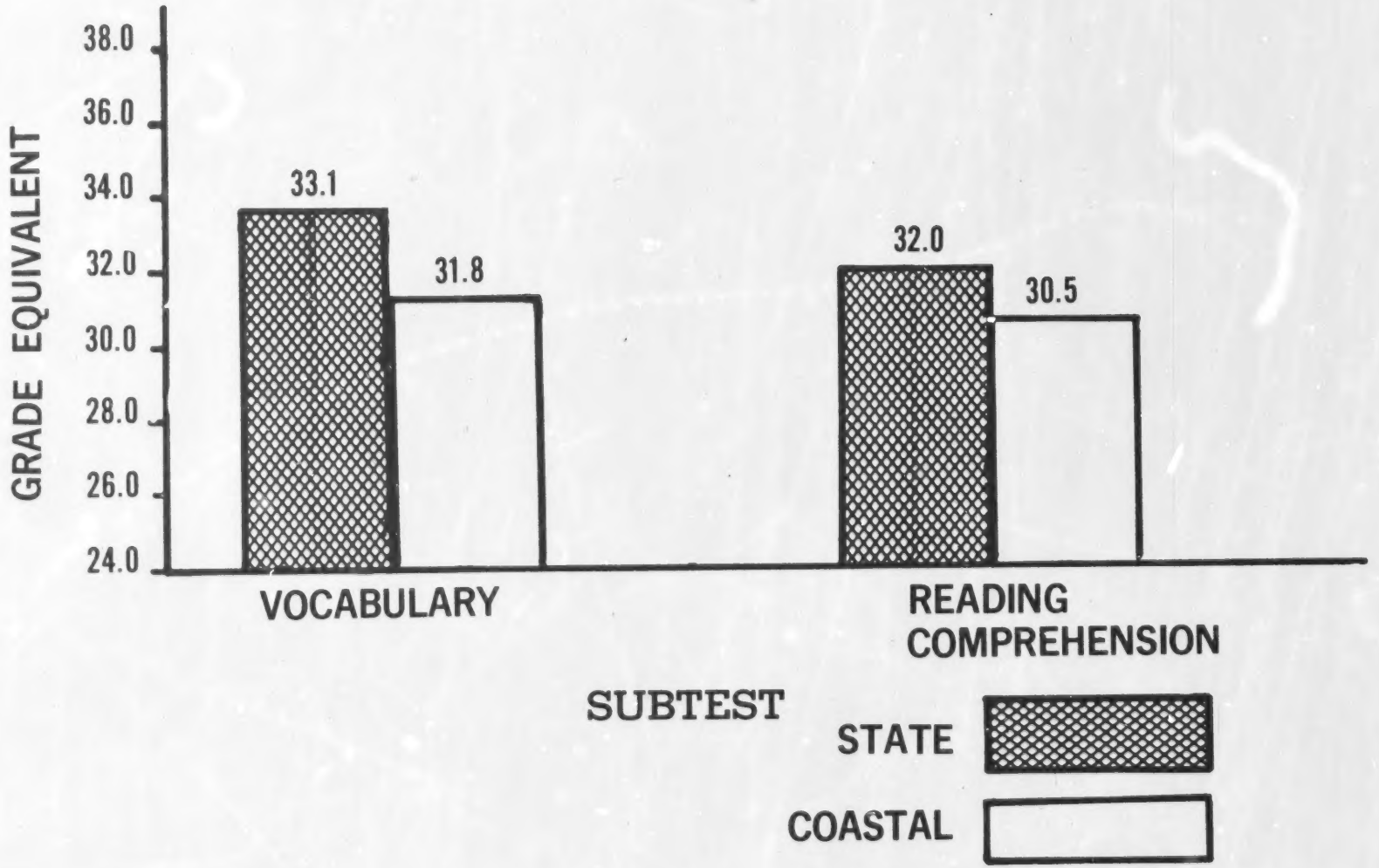


Figure 11

COASTAL VS. STATE AVERAGES ON THE ITBS READING SUBTESTS



LIST OF OBJECTIVES AND CORRESPONDING ITEMS
IN SCORE OBJECTIVE-BASED READING COMPREHENSION TEST

Objective Number	Text of Objective	Items Used to Measure Objective
1.	The pupil will be able to distill the main idea in what he reads and will be able to distinguish details as subordinate to that idea.	4, 19, 22, 32
2.	The pupil will demonstrate the ability to recall details in material he has read.	1, 3, 5
3.	The pupil will demonstrate the ability to utilize context clues to interpret new words.	23, 28, 38
4.	The pupil will demonstrate the ability to recall sequence of events in material he has read.	20, 36
5.	The pupil will demonstrate the ability to identify and distinguish between fact and nonfact in material he has read.	6, 10, 33
6.	The pupil will demonstrate the ability to make inferences and to draw logical conclusions concerning the material he has read.	17, 25, 26, 31, 37
7.	The pupil will demonstrate the ability to evaluate and make judgments and generalizations about material he has read.	7, 15, 24
8.	The pupil will demonstrate the ability to interpret and evaluate the actions, emotions, and reactions of characters portrayed in material he has read.	8, 9, 11, 12, 13
9.	The pupil will demonstrate an awareness of an author's purpose and/or the author's point of view.	2, 14, 34
10.	The pupil will demonstrate the ability to perceive cause and effect relationships in what he reads.	16, 21, 27
11.	The pupil will demonstrate the ability to recognize, make comparisons, and draw analogies in material he has read.	18, 29, 30, 35

KEY TO TABLES

Category	Symbol or Abbreviation	Meaning
Number of Items Correct	= 0	None
	$\geq$ 1	At least one
	$\geq$ 2	At least two
	$\geq$ 3	At least three
	= 4	All four
Region	C.P.	Coastal Plains
	Pied.	Piedmont
	Mtn.	Mountain
Race by Sex	BM	Black Male
	BF	Black Female
	WM	White Male
	WF	White Female
Family Income	H	High (over $15,000)
	M	Medium ($3,000 - $15,000
	L	Low (under $3,000)
Parental Education	1	Both parents less than 8th grade
	2	At least one parent more than 8th grade but less than high school
	3	At least one parent finished high school
	4	At least one parent had some education beyond high school

Percentage of Students Correctly Responding to Various Numbers of Items within Each Objective on SCORE Reading Test

Objective	# Items Correct	State	Region			Race By Sex				Family Inc.			Parent's Ed.			
			C.P.	Pied.	Mtn.	BM	BF	WM	WF	H	M	L	1	2	3	4
1 Distill main idea and distinguish subordinate details	= 0	3	4	3	2	5	6	3	1	1	3	5	3	6	3	0
	≥ 1	97	96	97	98	95	94	97	99	99	97	95	97	94	97	100
	≥ 2	85	81	86	89	74	78	87	92	97	87	72	75	78	87	95
	≥ 3	58	54	60	64	42	47	60	71	84	60	38	42	49	60	79
	= 4	26	22	28	31	9	19	29	36	57	27	9	11	16	28	43
2 Recall details	= 0	6	7	5	5	11	8	6	2	0	5	11	11	9	5	2
	≥ 1	94	93	95	95	89	92	94	98	100	95	89	89	91	95	98
	≥ 2	74	73	74	78	59	69	76	84	95	75	61	57	66	76	89
	= 3	44	41	45	46	26	37	44	57	73	45	25	23	32	45	64
3 Use context clues to interpret new words	= 0	11	15	9	5	22	20	6	5	1	9	20	22	14	9	2
	≥ 1	89	85	91	95	78	80	94	95	99	91	80	78	86	91	98
	≥ 2	68	59	71	81	44	48	76	82	95	70	45	45	56	70	89
	= 3	37	31	39	47	13	19	43	52	67	39	17	15	25	41	59

Percentage of Students Correctly Responding to Various Numbers of Items within Each Objective on SCORE Reading Test (con't.)

Objective	# Items Correct	State	Region			Race By Sex				Family Inc.			Parent's Ed.			
			C.P.	Pied.	Mtn.	BM	BF	WM	WF	H	M	L	1	2	3	4
1 Recall sequence of events	= 0	14	15	13	13	23	19	12	9	3	13	22	24	20	11	7
	≥ 1	86	85	87	87	77	81	88	91	97	87	78	76	80	89	93
	= 2	45	39	47	49	29	35	48	53	69	45	30	32	34	45	65
5 Make inferences and draw logical conclusion	= 0	1	1	1	0	1	2	0	0	0	0	1	2	1	0	0
	≥ 1	99	99	99	100	99	98	100	100	100	100	99	98	99	100	100
	≥ 2	97	95	98	99	94	93	99	99	100	98	93	92	95	98	99
	= 3	80	76	82	84	65	73	82	90	91	83	64	63	73	84	89
6 Distinguish between fact and nonfact	= 0	3	4	3	2	6	5	3	0	0	2	8	10	4	2	1
	≥ 1	97	95	97	98	94	95	97	100	100	98	92	90	96	98	99
	≥ 2	87	84	87	91	77	80	89	93	98	88	76	70	81	89	96
	≥ 3	71	66	72	80	49	59	78	82	92	74	51	44	59	76	90
	≥ 4	51	44	53	60	26	29	59	65	84	52	27	20	35	55	76
	= 5	24	18	27	32	10	11	31	32	56	25	7	7	14	26	45

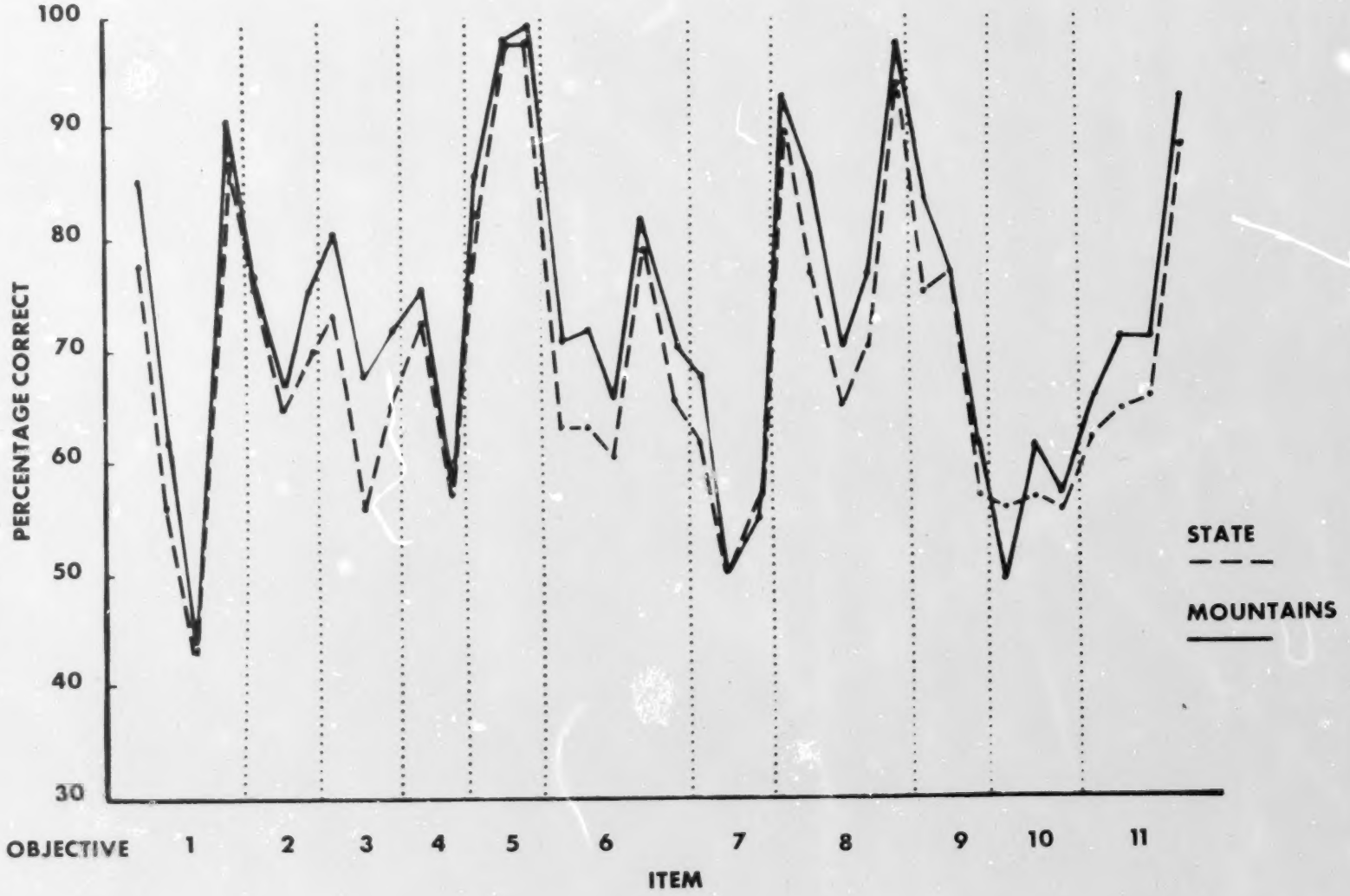
Percentage of Students Correctly Responding to Various Numbers of Items within Each Objective on SCORE Reading Test (con't.)

Objective	# Items Correct	State	Region			Race By Sex				Family Inc.			Parent's Ed.			
			C.P.	Pied.	Mtn.	BM	BF	WM	WF	H	M	L	1	2	3	4
7 Evaluate and make generalizations	= 0	11	13	9	13	17	15	11	6	6	10	16	18	14	10	4
	≥ 1	89	87	91	87	83	85	89	94	94	90	84	82	86	90	96
	≥ 2	58	49	63	59	42	47	60	69	79	59	45	36	47	60	77
	= 3	24	20	25	27	11	15	23	35	47	24	12	8	15	25	39
8 Interpret and evaluate characters' actions, emotions, and reactions	= 0	1	1	1	0	2	1	0	0	0	0	2	3	1	0	0
	≥ 1	99	99	99	100	98	99	100	100	100	100	98	97	99	100	100
	≥ 2	96	94	97	98	94	93	97	99	99	97	92	87	95	98	99
	≥ 3	88	85	88	94	78	81	90	94	97	89	78	72	82	90	96
	≥ 4	70	61	72	83	48	56	75	83	90	72	50	45	58	73	88
	= 5	40	34	42	49	20	25	45	54	68	43	20	22	29	42	62
9 Be aware of author's purpose of viewpoint	= 0	5	6	5	4	9	9	4	2	0	5	9	9	7	5	1
	≥ 1	95	93	95	96	91	91	96	98	100	95	91	91	93	95	99
	≥ 2	75	73	77	77	62	68	78	84	90	77	60	54	66	77	91
	= 3	39	35	41	44	21	26	44	51	68	41	20	21	25	42	61

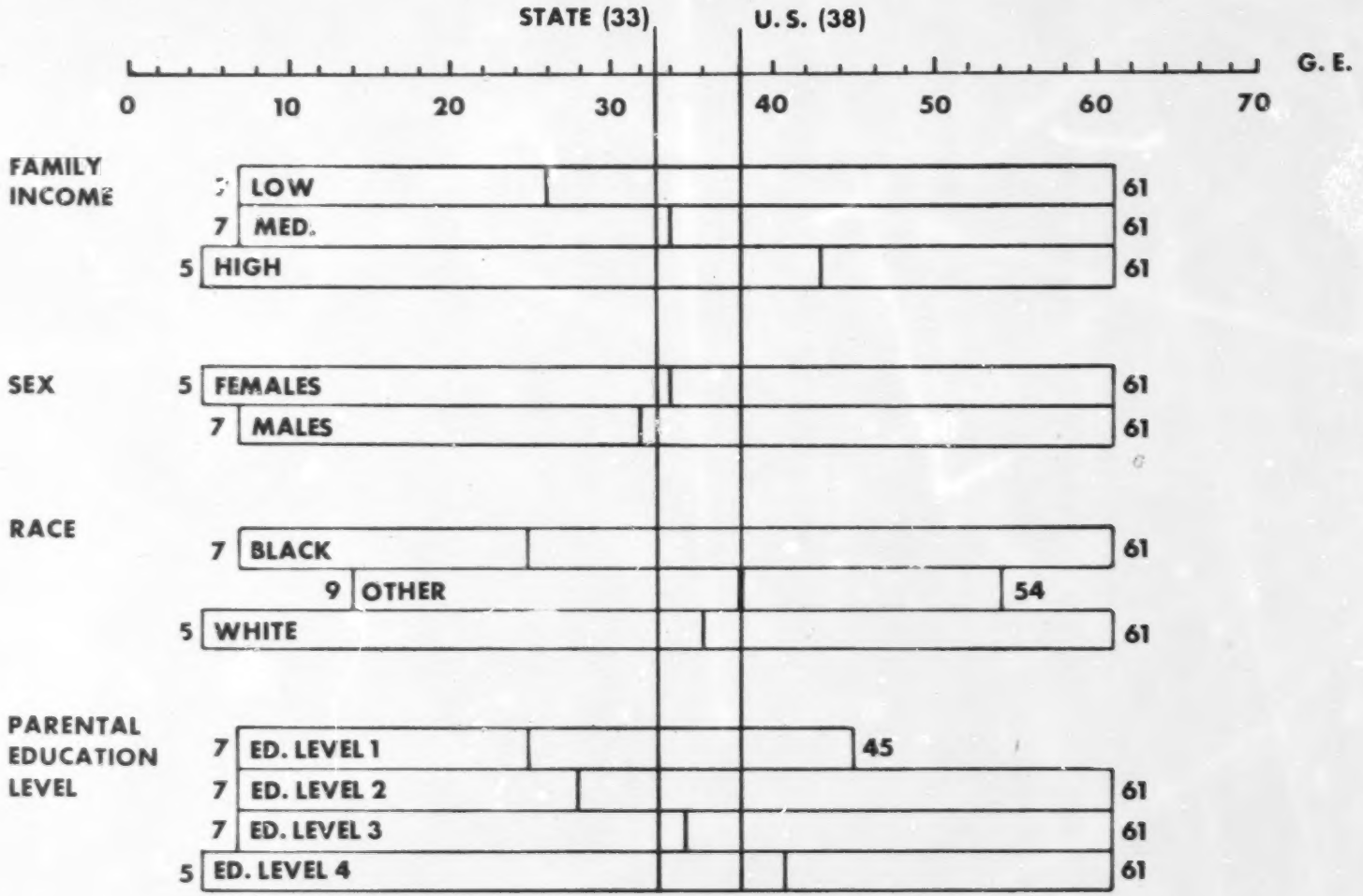
Percentage of Students Correctly Responding to Various Numbers of Items within Each Objective on SCORE Reading Test (con't.)

Objective	# Items Correct	State	Region			Race By Sex				Family Inc.			Parent's Ed.			
			C.P.	Pied.	Mtn.	BM	BF	WM	WF	H	M	L	1	2	3	4
10 Perceive cause/effect relation-ships	= 0	13	14	13	12	20	16	12	9	4	13	18	12	17	13	9
	≥ 1	87	86	87	88	80	84	88	91	96	87	82	88	83	87	91
	≥ 2	55	50	58	56	32	49	58	68	81	55	42	42	45	57	74
	= 3	22	20	24	23	9	12	23	33	43	23	9	11	17	23	35
11 Recog-nize, make comparisons, and draw analogies	= 0	4	5	3	1	9	6	2	1	0	3	8	10	4	3	1
	≥ 1	96	95	97	99	91	94	98	99	100	97	92	90	96	97	99
	≥ 2	84	80	85	91	70	77	86	94	98	86	70	70	77	88	94
	≥ 3	63	56	65	70	40	52	65	77	87	65	40	43	48	67	83
	= 4	35	29	37	41	14	21	39	48	65	36	17	20	23	36	58

PERCENT OF N. C. STUDENTS RESPONDING CORRECTLY TO ITEMS ON OBJECTIVE BASED READING TEST



AVERAGE SCORES AND RANGES BY CLASSIFICATION VARIABLES ON THE ITBS VOCABULARY SUBTEST



AVERAGE SCORES AND RANGES BY CLASSIFICATION VARIABLES ON THE ITBS READING COMPREHENSION SUBTEST